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LECTURES BY M. DE BLAINVILLE ON COMPARATIVE OSTEOLOGY.

THE

COMPARATIVE OSTEOGRAPHY

OF THE

SKELETON AND DENTAR SYSTEM

IN THE FIVE CLASSES OF

VERTEBRAL ANIMALS,

RECENT AND FOSSIL.

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WITH GRAPHIC DELINEATIONS BY M. WERNER;

EDITED (FROM THE FRENCH) AND

ADDITIONALLY ILLUSTRATED

WITH NUMEROUS NOTES, OBSERVATIONS, AND DRAWINGS,

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OF THE FOSSIL REMAINS OF THE PRIMATES.

WHEN the science of Organisation was still so defective, and when, from the almost total absence of osteological museums,* it was pretty nearly impossible for any one, however well acquainted with positive anatomy, to establish any comparison between the fossil remains dug from the bowels of the earth and existing individuals, and also with each other, without being almost of necessity led into error,—at that time, when the absence of any theory, however approximative, respecting the succession of beings on the surface of the globe,—left observers, as it were, indifferent on the subject of assertions which, in the present day, one might be induced to admit or reject in spite of the evidence of facts,—it is easy to understand how deep errors were introduced and received as truths, as well in regard to those animals we are now considering, as to man himself.

* The different views held by the Continental anatomists and zoologists generally,—at least those of the first class,—from those entertained by many persons in this country reputed philosophical, but who have foisted themselves into a reputation by the most barefaced plagiarisms and the employment of a pair of ample scissors to the works of others, is sufficiently remarkable, and well merits a passing notice. Many striking instances might be given, in Britain, of persons who have *published* themselves into notice; and who not only were never known to have been embarked in any real scientific inquiry, but who were absolutely without the materials for such inquiry, and yet contrived to foist up a *reputation* by clipping and cutting at the works of others. There lies before me, at this moment, a letter from a gentleman from a very large and thriving provincial town in the west of England, informing me that, in respect to anatomical, physiological, and zoological collections, there is not a scrap of a preparation, so as to constitute even a nucleus of a museum, nor ever was. Thus, notwithstanding the total absence of that *material* which all real zoologists and anatomists deem the *sine qua non* of inquiry, several *writers*, or rather copyists,—it were extremely difficult to find a proper designation for them, unless we fairly call them Encyclopedists,—contrived to amuse the public for many years with *papers*, which the ignorant mass mistook for original memoirs; and these persons still figure, *prominently*, as writers in encyclopædias! When these things are known, it causes less surprise to learn the astounding fact, that a human ovarium had to travel backwards and forwards to and from London from a large city, abounding with medical men,—many of them having high pretensions, and in which city not one of these *great* anatomists and physiologists,—who, by-the bye, never cease *writing* and *talking* about anatomy and physiology, had not thought it worth while to put up half a dozen preparations of a structure which, of all others, was the easiest obtained.—*R. Knox.*

The first assertion, which has reference to a fossil Ape, rests on the nearly complete skeleton of a quadruped with a long tail, discovered in 1733, in the metalliferous schists of Thuringia, and which Swedenburgh almost simply figured (Table H., in his "Treatise de Capro," p. 168), ascribing it not to a species of Guenon or Sapajou,—as has been said, altogether erroneously, by M. G. Cuvier, p. 7, in his article on Fossil Crocodiles,—but to some marine or amphibious animal (the Amphibia at that time generally including Reptiles), or to some kind of Sea-Cat,* on account of its tail; that is to say, to a species of the Shark, named at that time, and sometimes even yet, Sea-Cat. In fact, Swedenburgh's chief idea being that this fossil was a marine animal, amphibious or not, it must be quite evident to every one that he had not the most remote idea of its being an Ape or a Sapajou.

From this period till 1755, I have met with no author on petrifactions who appears even to have thought on so erroneous an approximation,—which, however, M. George Cuvier still asserts,—unless it be Henckel ("Kleine Mineralogische," p. 928, 1740, or "Lesser, Lithotheologie," p. 493, 1733), and even this is but little probable. In fact, J. Gesner, author of a small work on petrifactions, both excellent and very remarkable for the epoch in which it appeared (1758), and still worth reading, does nothing more than quote the figure given by Swedenburgh, under the name employed by him, namely, *Sea-Cat*.

It is, then, to D'Argenville, and especially to Walch, in 1775, that we ascribe the gross error which M. G. Cuvier attributed to Swedenburgh, indicating the fossil alluded to by him under the title of the Skeleton of a Quadruped with a tail, believed to be that of an Ape. In fact, the commentator on the plates of Knorr, in other respects learned and very useful (Knorr on the fossils of all classes of organised beings), in mentioning, in two places, the figure given by the Swedish author, says, in one part, "that this skeleton has the greatest resemblance to that of an Ape or a Baboon;" and he adds, in another part, that "Swedenburgh took it for a Baboon, and others thought it to be the skeleton of an Ape." All which was entirely false, as we have remarked above, proving our opinion by quoting the expressions of the learned Swede. From all this it may be fairly concluded, in as far as it was possible to do at that period, that this fossil was really a reptile of the order Sauria, as is very generally admitted in the present day.

* Representat (says Swedenburgh, in speaking of this figure) animal quoddam marinum amphibium, vel aliud ex caudâ auguari licet felis marinæ quoddam genus fuisse. Paragraph xvii. entitled, "Processus Liquatorius cupri Eisleben et Mansfeldiæ."

The same author (Walch) speaks, also, in his "Commentaries sur l'Iconographie de Knorr," tom. ii. sec. 2, p. 150, of the entire foot of an Ape, with the bones, skin, flesh, nails, all converted into stone; and of which Kundman gave a description and a drawing in his work, entitled, "Rariora Naturæ et Artis," p. 46, tab. 3, fig. 2. Before having it in my power to consult this work, I had suspected that if this petrified foot were really that of an Ape, or of a Mammal, it could only belong to those false petrifactions, or incrustations, which are daily made at the fountain of Saint-Alyre, in one of the suburbs of Clermont, in Auvergne, where I myself saw, in 1829, an attempt made to petrify an entire Ox; but our librarian, in the museum, having sent for Kundman's work from Germany, soon discovered that this pretended foot bore no resemblance to that of an Ape, and that it was only a *lusus naturæ*, if it really were petrified; or, perhaps, the pelvic fin of some Lophius, if it really had ever formed part of an organised body. I shall here quote Kundman's words respecting it, who was a physician of some reputation in his time, but most certainly a very poor naturalist.

"The most extraordinary of the petrifactions in my possession, is the hand of a Baboon, a large kind of Ape; it is seven inches long by three broad, as may be seen in the drawing, which is of the natural size; externally, the surface is black and granulated, like the skin of animals in general; anteriorly, are the fingers, with distinct nails; above, are the nerves (tendons) elevated as in leaves; at the back, or towards the carpus, where the fracture is, may be distinguished, quite clearly, the separation between the skin and flesh; and this, together with the bones and the marrow, have a different colour and consistence." To which he adds, "Professor Chrishan-Gabriel Fischer, of Kœnigsberg, has never seen a similar specimen in any cabinet of natural history he had ever visited." Kundman winds up his story by saying, that he had been offered for it 100 dollars, Spanish.

A third example, of the fossil bones ascribed to this class, will be much less the subject of controversy, at least anatomically, for in respect to its fossil state it is probably not the same. I allude to the assertion of Imrie's, respecting the two crania which some workmen, employed on the fortifications of Gibraltar, found one day in the upper parts of the rock, and which they considered as human. In fact, Dr. Imrie believes them rather to belong to a kind of Ape; but, supposing that such a mistake could happen with workmen,—and which, with good reason, M. G. Cuvier doubts, the great difference in size between the human head and that of the Magot being sufficient to undeceive even the common labourer,—it is by no means certain that these crania were

really fossil, and contained in the osseous breccia of the mountain. In fact, the English observer himself believed them to belong to Apes, which are still found there, according to many persons, and which he assures us were there, at least in his time.

M. Fischer, of Waldheim, first threw out the hint, in his "Paleontologie Animale Systematique," p. 132, that the skeleton of the Guadaloupe, and considered as human, might, perhaps, be referred to the order Quadrumana; but it is quite sufficient to read the description and consult the figure which M. Knight* has given of this singular fossil in the "Philosophical Transactions of the Royal Society in London," to be satisfied that it is most certainly human, as is my own belief, after having examined it in the British Museum.

Thus, almost to the present day, it was certain that no trace had been discovered of the family of Apes in the strata of the earth, not even in the alluvial formation; so that M. G. Cuvier might well say, p. 159, in his "Discours sur les Revolutions du Globe," "No bone, no tooth of an Ape, nor of a Maki (*fossil*), has ever occurred to me in my long inquiries:" when M. Lartet announced to the Academy of Sciences, in letters read at the meetings of the 16th January and 17th April, 1837, that he had just discovered, in the neighbourhood of Auch, the fossil remains of an Ape, of a Sapajou, and of a Maki; whilst, at the same time, in India, Messrs. Baker and Durand announced others which they had discovered in the tertiary deposits of the lower Himalayas, which, however, was less extraordinary, since animals of this class still inhabit these countries.

The singularity and deep interest attached to a discovery so unexpected as that of M. Lartet, for an instant, made the correctness of the observation be doubted, so difficult was it to suspect the coexistence in the same depôt of the fossil remains of Apes, Sapajous, and Makis, with those of the Rhinoceros, of the Palœotheriums, the Deer, Antelopes, those of the Primates of Asia, America, and Madagascar. In fact, it was reasonable to suspect that an observer, however sagacious, might be deceived, inasmuch as he was without the important elements of comparison, possessing only drawings, more or less incomplete. The transmission, however, of a second letter, containing a detailed description of the principal fragment, accompanied by a drawing, proved, beyond a doubt, the truth of a part at least of M. Lartet's discovery. Nevertheless, to be quite sure that the remains were really those of an Ape, and as he asserted of a Gibbon,—a group of the Quadrumana found almost only in the great isles of the Indian Archipelago,—it required more than a figure drawn in haste, and, consequently, more or less, incorrect; more than a description drawn up without any objects of comparison; it was necessary that the fossil remains should be sent to Paris, which M. Lartet did, aiming only at truth, and being quite positive of his discovery; they were addressed to me for the Museum of Natural History, and these are the fragments which we now proceed to describe.

The principal figure consists in a lower jaw, almost complete, having all the teeth present, and wanting only the terminating portion of the ascending branches. This jaw measures in length an inch and a half from the incisive teeth to the anterior root of the ascending branches, and the same in width between these two points; the angle of union of the body and branches is 25 degrees, and the length of the symphisis is about 9 lines; the profile view of the symphisis is rather oblique, since it forms, with the base of the jaw, an angle of 50 degrees. Of the two surfaces of the body of this mandible, the external has a single *foramen menti*, small, and opening immediately below the first anterior molar; the internal, from being mutilated, shows merely a cavity for the insertion of the genio-hyoideus muscle, without any distinct genioid process. The base is thick, rounded, and perfectly smooth; the alveolar margin occupied by a series of contiguous teeth, that is, without any interval between them, pretty nearly of the same height, and forming a parabola, or horse-shoe figure.

The perfect state of preservation of the teeth, their number, and the small effects of trituration upon them, prove it to have been an adult animal in the vigour of his age, and of all the development of which it was susceptible.

As in all the Apes, properly so called, of the old continent, there are 16 teeth in the fossil jaw. The incisives, which are quite equal to each other, and rather oblique or sloping, show a peculiarity which I have not observed in any living Ape, in this, that they are as high as the canine. Moreover, they are wedge-shaped, composed of a long fang, pointed, compressed transversely, and of a palette (*corona*) short, whose edge has been worn by use. As these teeth are somewhat contracted at the *neck*, and touch only by the corona, they leave between them, in their lower part, a considerable space. The canine teeth are, as we have remarked, short, wedge-shaped, slightly curved, turned outwards, and with a well marked neck behind. What this tooth offers most worthy of remark, is a deep groove posteriorly, which, sloping at the neck, shows that the upper canine in crossing with it, did not, probably, extend beyond it, which is the contrary to what happens in most Apes. Of the two anterior or false molars, nearly equal in height, the *first*, a little more elevated than the second, is implanted altogether verti-

* Charles Konig, on a fossil human skeleton from Guadaloupe.—*Ph. Tr.* 1814.

cally; its corona has a single trihedral tubercle, somewhat pointed; whilst the *second* molar has two tubercles, the anterior a little stronger than the posterior one, and both having two points worn away. The *principal* molar greatly resembles the first posterior molar, the corona—besides two pair of nipple-shaped tubercles, which are placed obliquely, and found in all Apes,—has a fifth posterior and external tubercle. This peculiarity did not escape M. Lartet, for, in truth, by it he concluded that the fossil belonged to an Ape analogous to the Gibbons, although it is decidedly less marked than in these. The fourth molar is, perhaps, a little narrower and longer than the others, with four tubercles arranged obliquely in two pairs, having a heel which is also pretty strong, and is subdivided into two or three tubercles, somewhat as in the Magots, in which, however, it is much better marked.

From this it is quite evident that the jaw we now speak of belonged to a Primate, to an Ape of the old continent, and to one high in the scale. Now, as the Gibbons are most certainly the group of Apes which ought immediately to follow the Orang-Outan, the suitableness of M. Lartet's arrangement becomes evident, particularly as regards the characteristics drawn from the teeth. Nevertheless, as this arrangement is not so strongly marked in the fossil Ape as in the now-existing Gibbons, and that, besides, it presents a peculiarity much more distinct, in the proportion of the last molar, it seems to us, *in fine*, that the jaw of the fossil Ape found at Sansans indicates a particular form, which is neither that of the Gibbon, nor a Semnopithecus, but an intermediate Guenon.

That which does not admit of dispute, is, that no living species of Ape, actually forming a part of our collection, presents the specific characters of the fossil species discovered by M. Lartet, and, therefore, it ought to have a special name; we propose calling it the Antique Ape (*Pithecus Antiquus*).

Another portion of the lower jaw, the branch (*body?*) of the right side, containing the canine and molar teeth, found in the same place, has confirmed, if any confirmation were wanting, the distinction of the ancient European Ape. In fact, the three last molars, although somewhat more worn, show the fifth tubercle described above. The second specimen of the jaw is somewhat less than the first.

No other fossil remains of the skeleton of this Antique Ape have hitherto been discovered at Sansans; in fact, the cuboid bone and distal phalanx, which, at first,—and being without proper materials for comparison (i. e., a museum!), M. Lartet supposed to have belonged to a Quadrumanous animal,—have evidently belonged, the *one* to a carnivorous animal the size of a Lion, and the *other* to a Pachydermatous, with incomplete toes.

About the same period that these unexpected discoveries were made in Europe, in a middle stratum of the tertiary formation, another discovery was made, under geological circumstances sufficiently analogous, in India, and equally in the tertiary and fresh-water formation, constituting the Sivahlien or lower Himalaya mountains, and also combined with a great number of vertebrate animals of almost all classes. This discovery seems due to Messrs. Baker and Durand, engineers in the Company's service. Their assertion was based on a single specimen, viz., the right half of the upper jaw. Since then, Messrs. Falconer and Cautley discovered other fossils, which they also considered as belonging to Apes. 1st, an astragalus, or foot bone; 2nd, a great part of a mandible, or lower jaw; 3rd, a fragment of the right side of another lower jaw; 4th, another fragment of the same part; 5th, the superior left canine tooth.

Of these fossils we have, unfortunately, seen only drawings, and these not made with that care to enable us, with safety, to decide on questions so nice as their identity with or difference from recent species. The descriptions, likewise, do not bear on the essential points. Considering, however, the deservedly high interest attached to these fragments, we shall endeavour to draw something useful from them.

The fragment discovered by Messrs. Baker and Durand consisted of the right side of the upper jaw, or rather of the face from the anterior margin of the orbit to the extremity of the muzzle, with the palatine arch and the marginal series of the teeth, excepting the incisives.

The figures which these gentlemen gave of this fossil were made by aid of the *camera lucida*, but somewhat foreshortened, to show that part of the bottom of the orbit which remains. I subjoin a literal translation of the article which Messrs. Baker and Durand caused to be inserted in the 53rd number of the "Journal of the Asiatic Society of Bengal," 1836.*

" Journal of the Asiatic Society of Bengal, No. 59, November, 1836. Published on the 17th Dec., p. 739, vii. Sub-Himalayan Fossil Remains of the Dadupar Collection,

* On referring to the journal, we find M. De Blainville's reference incorrect, there being in No. 53 a table merely of the Sub-Himalayan fossil genera, by Messrs. Baker and Durand. Being unwilling to retranslate the French translation, and the reference by M. De Blainville being evidently erroneous, we instituted a strict search through the numbers of the journal, and found the paper alluded to by M. De Blainville, and which we accordingly quote entire from the original journal.—*R. K.*

by Lieuts. W. E. Baker and H. M. Durand, Engineers.

"QUADRUMANA.

"Lyell, when combating the inconclusive evidence advanced in support of the theory of the progressive development of organic life, notices the absence of the remains of quadrumanous species in a fossil state, and the hypothesis which this circumstance has by some geologists been considered to countenance. He, however, draws attention to the fact, that the animals which are found in sub-aqueous deposits, are in general such as frequent marshes, rivers, or the borders of lakes, and such as live in trees are very rarely discovered; he adds, moreover, that considerable progress must be made in ascertaining the contemporary Pachydermata, before it can be anticipated that skeletons of the quadrumanous tribes should occur. Considering the great number of relics assignable to the *Pachydermata*, *Ruminantia*, and Feræ, which the Sub-Himalayan field has produced, it is not, therefore, surprising, that at length the half jaw of a quadrumanous animal should be brought to light; the circumstance, however, being interesting in several respects, we have not deferred its communication until further research should put us in possession of more perfect specimens; the chances are against the probability of more being brought in for some time; in the interval it may be as well at once to add to the Sub-Himalayan fossils, one species belonging to the order of the Quadrumana.

"The specimen in question was found in the hills near to the sutlej, and it appears, from the attached matrix, to have been derived from a stratum very similar in composition to the one described as occurring at the Maginund deposit.

"The fragment consists of the right half of an upper jaw; the molars, as to numbers, are complete, but the first has lost some of its external enamel, and the fifth has likewise had a portion of the enamel from its hind side clipped off. The second and third molars are a good deal worn; and the state of the fourth and fifth such as to indicate that the animal was perfectly adult. The canine is small, but much mutilated, its insertion into the jaw and its section being all that is distinct.

"From the inspection of the molar teeth, the order to which the animal belonged is sufficiently evident; but there is enough of the orbit remaining to afford additional and very satisfactory proof; the lower part of the orbit and the start of the zygomatic arch being very distinct, would alone remove all doubt from the subject, the orbits of the Quadrumana being peculiar, and not easily to be confounded with other animals. On comparison with the delineations of the dentition of this order of animals, given by F. Cuvier, the fossil bears some resemblance to the genus Semnopithecus; the section of the canine, and the form and size of the false molars are very similar to the exemplar taken by F. Cuvier from a head of the species *Maurus*, a species found in Java: had the drawing been taken from the *Entellus*, a species which inhabits India, the comparison would in this instance have been more satisfactory; the Maurus being chosen as the type, and no mention made of other difference except length of canines, the various species may be supposed to present no material departure from the type in the form of the molars. The third molar in the fossil is so much worn, as not to admit of being compared with the drawing, from unworn teeth; the fourth is like that of the *Maurus*; but the fifth does not resemble the analogous molars of any of the existing species, as represented by F. Cuvier, for the fossil tooth posseses a small interstitial point of enamel at the inner side, which does not appear to have place in any of those delineated. The incisors are absent, but the intermaxillary (*bone?*) is clearly distinguishable. Were it not for the size of the canine and the fifth molar, the specimen presents some resemblance to the genus *Macacus*, given as the type of the genera *Macacus* and *Cynocephalus*; the smallness of the canine, and the large size of the molars, cause the fossil to approach more nearly to the *Semnopithecus* than to the *Macacus*: the difference is, however, great between the two, for the Entellus is said to attain the length of three and a half feet; whereas the length of the fossil animal, if the space occupied by the molars and their size be deemed sufficient ground for a conjecture, must have been equal to that of the *Pithecus Satyrus*; the space taken up by the molars is 2.15 inches. This circumstance, and the differences before pointed out, clearly separate the fossil from the species belonging to the genera Cynocephalus and Semnopithecus. The specimen is imperfect, but it indicates the existence of a gigantic species of quadrumanous animal contemporaneous with the Pachydermata of the Sub-Himalayas, and thus supplies what has hitherto been a desideratum in paleontology, proof of the existence, in a fossil state, of the type of the organisation most nearly resembling that of man.

"*Note.*—Figure 2 in the plate is a little foreshortened, in order to show the bottom of the orbit at *a*, which in an accurate profile view is hidden by the ascending part of the orbit, the section of which is seen at *b*.

"Both figures were taken with the camera lucida."

COURSE OF LECTURES

ON THE

PHYSIOLOGY AND PATHOLOGY OF THE BLOOD,

AND

THE OTHER ANIMAL FLUIDS,

DELIVERED IN THE SESSION OF 1839-40,

AT THE

School of Anatomy adjoining St. George's Hospital.

By HENRY ANCELL, Esq., Surgeon.

Lecture XXIII.

The blood in diseases of the class Neuroses. Analysis of the blood in chlorosis. Spasmi. Remarks on the triple relation between blood, muscular fibre and nerve. Theory of Tetanus as a symptom of poisoned blood. Hydrophobia. Saccharine blood in Diabetes. The blood in diseases of the class Cachexiæ. Tubercle, Carcinoma and Melanosis, never induced by local causes. Result of Dr. Clanny's analysis of blood in consumption. Scurvy. Effects of salt on the blood. Jaundice. Erysipelas. Diffuse cellular inflammation. Instances in the class Locales in which the blood is concerned. Lupus. Polydipsia. Constipatio.

Gentlemen:—Proceeding with the class *Neuroses* in the nosological chart, I have before me another quotation from the manuscript lectures of Dr. Wilson.

"The nerves should be considered not only in connection with the structures containing or supporting their central uniting masses—not only as incidental to a geometrical demonstration of the skull, the backbone, or the armpit: again, not piece-meal only in the several organs, but in reference to other great anatomical divisions of structure, universal in the body as themselves. Think of them thus in connection with the 'vascular system' as it is termed, and you will find the nerve of each particular structure, in close, constant relation by its thousand threads, with the blood in its thousand capillary tubes, in a close, constant, and *peculiar* relation, by which the growth and function of the structures under examination, themselves *peculiar* and *constant*, are established and maintained. You will, I say, observe the nerve of any particular structure, in a peculiar, constant relation with the blood; and, mark, with the *continuous* mass of ventilated blood, at this one extremity of it—the nerve. Trace it from this special organic structure (its true physiological origin), it will never fail to conduct you to the brain; and here, at its other extremity, you will find it again in close, constant relation with the blood, projected at every instant, in abundant quantity, from the first branch-pipes of the great arterial conduit. Thus, by viewing the nervous structure in its broad, general character, in connection with the vascular system, we establish at once its great peculiarity—its twofold relation, by a double organisation, with the blood. That unique, mysterious fluid, like nothing else on earth, above or beneath it, by which all the business of the body, whether of internal structure or with external forms of matter, is at every instant administered; that single effect of every action; that combined result of every secretion—the blood which alone in physiology is final. Reflect—and you will find that man (physiologically considered), and even his moral and intellectual attributes, are, in this his transitory state of being, coincident and subject to the one great function—that man, I say, as an animal, is but an apparatus for blood-making—a channel the more for transmitting this continuous life-stream of the human race, which nothing but itself (the blood), in relation with air and food and other external forms of matter on the one side, with structure all and each on the other, could produce—nothing but a living animal could generate."

It is only necessary to remark, respecting the order *Comata*, that the predisposing and exciting causes of the diseases which are comprised in it, are, for the most part, causes which modify the quantity or the quality of the blood. Thus we have *Apoplexia sanguinea, serosa*, and *venenata; Paralysis plethorica, serosa*, and *venenata; Tremor a coffeâ, metallurgorum*, &c.; with all those symptomatic general affections, of the powers upon which sense and motion depend, which so frequently assist in expressing the various diseases of the blood, in the class Pyrexiæ. It is obvious that no rational view can be entertained respecting the nature and treatment of this order of maladies, without a previous acquaintance with the blood and its organs of circulation.

In the *Adynamiæ*, also, we find diseases in which the blood and the other animal fluids play an important part. *Syncope* need not detain us; but I may mention in this place, that Lecanu submitted to separate analyses the blood of eight individuals, three being men and five women, affected with diseases of the heart. He found a constant and very remarkable diminution in the quantity of globules (red corpuscles and fibrin), and a proportionate augmentation of water; the albumen, salts, extractives, and fatty matters, remaining normal. The difference was greater in the blood of the females than in that of the men. Having bled two of these patients a second time, he found, in both cases, that the proportion of red corpuscles and fibrin constituting the clot was increased; which leads him to ask this curious question,—Whether in affections of the heart, successive bleedings may not have

the effect of increasing the quantity of corpuscles in a given weight of blood, to the contrary of that which is known to be the effect of bleeding, in health and in inflammatory diseases?

Chlorosis.—Comparing the following with Lecanu's standard of health (Table I.), it appears that in chlorotic blood there is a deficiency of considerably more than one-half of the red corpuscles, and a more than corresponding augmentation of 80 to 90 parts in 1000 of water.

Table XXXV.

Analysis of the Blood in two cases of Chlorosis; one aged 15, *the other* 21. *The proportion of Serum to Clot being as* 1000 *to* 400. *By Mr. Jennings.*

Water	871	..	852
Fibrin	5	..	3
Albumen	60	..	78
Fatty matter	1.7	..	2
Extractive	3.	..	2
Alkaline salts	7.6	..	7
Earthy salts	1.8	..	2
Corpuscles	48.7	..	52
Loss	1.2	..	2
	1000.		1000.

Accordingly the relative proportion of albumen, and of the other fixed materials of the serum, are much less diminished than that of the corpuscles; and it is not so much that the liquor sanguinis is impoverished, as that the red corpuscles are defective. This is corroborated by Lecanu, who found, water 862.40, + "globules" 53.15, + solid matters of serum 82.45 = 1000 in one case, and water 861.97, + "globules" 51.29, + solid matters of serum 86.74 = 1000 in another case. Dr. Bird, however, in his manuscript memoir, states that the blood in chlorosis has a clot as firm as in inflammatory diseases; he regards it as merely diluted blood, the quantity of water, as respects the whole, being increased, while the other constituents bear a normal relation to each other. But Mr. Jennings, again, makes a most important observation, to the effect that a buffy coat is frequently formed in this kind of blood, without inflammation, the reason for which is obvious; the liquor sanguinis containing its usual quantity of albumen and fibrin, or nearly so, the clot after coagulation must contain a greatly-augmented proportion of the last-mentioned principle; in some instances sixfold, as compared with its usual ratio to the red corpuscles; and accordingly the latter are liable to subside below the surface, and to leave a buffy coat. The morbid condition of the blood in this disease, whether we regard it as a deficiency of red corpuscles only, or, together with that, an impoverishment of the liquor sanguinis, accounts for the pallor, the waxen appearance, the amenorrhœa, the diminished temperature of the body, the œdematous tendency, and, in fact, all the symptoms. The iron of the blood is a component part of the hæmatosine, its quantity therefore depends upon the colouring matter; it is greatly deficient in chlorosis; and there can be no rational doubt that the well-established beneficial effects of this element of the blood, in its various preparations, is directly attributable to its absorption and assimilation by the vital fluid.

The great order *Spasmi* follows, at the head of which is *Tetanus*. The predisposing causes of this disease are, in many instances, obviously those which deteriorate the blood, and produce debility. It sometimes proceeds from cold, and in such cases fever occurs. But regarding the symptoms of tetanus and spasm intimately, as instances of general simultaneous nervous influence, Dr. Wilson inquires, "why an effect of nerve alone? which in muscle is in triple relation with blood and fibre. This is an assumption altogether founded on our preconceived notions of nervous centre, impressions beginning from the brain or the nerve in some way. Even where from pressure, or laceration, irritation acts on distant parts, I believe it is communicated by the blood, or its moving forces, which, at all events, are common to all fibres through the blood; for interrupt the blood's current everywhere, between the point of irritation and the part affected by spasm, and the spasm with all other actions ceases. There is no physical evidence that the spasm in tetanus is conveyed by the nerve exclusively; you should address yourself to the entire structure affected, not to the nerve forming only a part of it, but to the blood and nutrition; to the muscle entire. Spasm of the involuntary muscles is the most dangerous, as it implies the interruption of the passage and continuity of the blood, between the air and extreme texture. Spasms are, in truth, important, just in proportion to their interference with the relations of the blood with the air, and with extreme texture. I should certainly treat tetanus by medicines directed to the blood."

Every doctrine hitherto taught in the schools respecting tetanus is purely hypothetical; and aware of the ground upon which we stand, it is perhaps right to meet hypothesis with hypothesis. I should then say, tetanus is in every instance symptomatic of a poisoned state of the blood, and in this respect, as in many others, analogous to fever and to cholera. You may produce this disease by the injection of the minutest quantity of poison into the blood (Table XXIII. 37). You may render it intermittent according to the quantity injected (*Idem*). You may prevent the spasms in a limb, the whole of the remain-

ing part of the system being affected with them, by tying its arteries, and arresting the flow of blood into it (*Idem*). I observe in Dr. Wilson's notes, "in the summer of 1838, many cases of spotted fever then prevalent that fell under my care, presented symptoms of fever, 'tremor,' and irregular action of the voluntary muscles. Fever always implies a state of muscle, as being general in the system. Its effects on muscle are very evident, in the weakness expressed by the patient from the very beginning of the fever, e. g. prostration of strength and inability to stand. In the instance of a young gentleman, whom I attended in one of the boarding-houses attached to the Westminster school, there were spasms, incidental to an attack of fever, affecting all the great muscles of respiration to such an extent, as to suggest to Mr. Seaton the idea of tetanus establishing itself as a result of some local injury. In a few hours from my visit the case was established as one of measles. Thus there was an eruption on the skin coincident with spasm. This accident of spasm, severe at the commencement, and during the progress of some fevers, is a useful memorandum for the practitioner in the treatment of such particular case, and is of great interest in the proper understanding of muscular diseases generally." The blood is said never to exhibit the inflammatory crust in tetanus; but, according to every account given, it has a looser texture than ordinary, and does not coagulate in the usual manner; yet, in one of Dr. Wilson's cases, I observe the blood was buffy. *Post-mortem*, the nerves are very frequently found intact, and the blood thick and treacly. If it be demanded how it should ever happen that traumatic tetanus is frequently traceable to the injury of a nerve, the reply is, that in all probability the disease here depends in every instance on a damage done to nervous structure, whose energetic elements differing from those of the other structures, the cerebrine with its sulphur, phosphorus, &c., are more prone, under circumstances, to unite themselves into a poisonous compound, which absorbed into the blood produces the effects of a nervous poison. The fact that tetanus has been known to affect one side of the body only, is no objection to this *hypothesis*, for the poison may have expended itself on one side of the brain, or spine. Tetanus again, for the most part, does not commence till the period of suppuration, when from odorous effluvia, darkish, unhealthy-looking secretions, and other circumstances, we know that new forms of matter are produced; but if it be admitted as a fact, that this disease has developed itself fully in a quarter of an hour after an injury, this does not confute, but rather tends to confirm the explanation given; for the necessary elements being once brought within the sphere of each other's influence, under favourable circumstances, a poisonous compound may be generated instantly; and we know that however introduced into a tissue, poisons of this kind may be absorbed immediately into the blood, and in a very few minutes will produce all their effects, terminating in death.

Hydrophobia. — Dr. Hertwich's experiments show that in the dog this disease is communicated by inoculation, but, like other contagious maladies, the virus producing it requires a peculiar predisposition for its development, since the experiment succeeded in nineteen out of fifty-nine cases only. The *germ* of the contagion is contained in the mucus of the mouth, the substance of the salivary glands, and the blood, all of which communicate the disease, but not in the perspiration, or the nervous pulp; and this author infers that it is not of a volatile nature. The poisonous state of the abovementioned fluids exists throughout the confirmed attack, and for about twenty-four hours after death; but since not one of twenty-two dogs made to swallow them took the disease, the germ seems to be decomposed in the stomach; on the contrary, the application of the saliva to wounds was always successful, and the attack most frequently occurred within fifty days of the inoculation. In an experiment by Magendie the dog became rabid in a month, but two others effectively, but from the latter no further contagion was observed (?) The post-mortem appearances are precisely those from poisoned blood; the lining membrane of the alimentary canal has been found inflamed, ulcerated, and even gangrenous; the nervous centres sometimes inflamed, or unaffected; and in the human subject especially, the blood itself dissolved, and the heart and large vessels containing a large quantity of dark fluid blood, although Morgagni found it in a state highly tenacious and coagulable. By the injection of water into the veins during the paroxysm of hydrophobia, Magendie quieted the spasms, and produced a calm, but the patient went on dying.

Diabetes.—A disease in which the fluids are remarkably concerned. Forty pounds or more of urine will be passed daily, containing a large quantity of saccharine matter. There is a voracious appetite, intense thirst, and a dry skin, to counteract this demand on the blood, notwithstanding which the patient most frequently emaciates rapidly, and dies. It has long been a question, whether the disease is seated in the stomach, the kidneys, or the blood. The failure of chemists to detect sugar in the blood of diabetes, gave those who refer the disease to "irritation" of the kidneys, their own way for a length of time, although not very justly. More recently, Ambrosiani, Drs. Rees and Maitland, Messrs. Kane, Mac-

gregor, and Müller, have amply confirmed the fact first noticed by Rollo, that the blood of diabetic patients does contain sugar. "Those who have drawn blood freely and repeatedly, represent it as having the appearance of treacle, being thicker than natural from the drain of its finer parts, and darker from a closer approximation of its red corpuscles, little capable of coagulability, and not separating by rest into a proper serum and clot."

TABLE XXXVI.

Analysis of Diabetic Serum and Blood.

I. Serum.—The sp. gr. of the Urine being 1.048, *by Dr. Rees.*

Water	908.50
Albumen yielding phosphate of lime and oxide of iron on incineration	80.35
Fatty matters	.95
Diabetic sugar (approximation)	1.80
Animal extractive soluble in alcohol—urea	2.20
Albuminate of soda	.80
Alkaline chloride with traces of phosphate—alkaline carbonate and trace of sulphate	4.40
Loss	1.
	1000.

II. Blood.—Müller's Analysis reduced to 1000 *parts, for purposes of comparison.*

Water	681.08
Albumen	119.25
Fibrin	4.48
Sugar	11.28
Liquid fat	3.29
Crystallised fat	5.73
Extractive matter	3.85
Chloride of sodium	4.07
——— potassium	2.24
Sulphate of potassa	1.56
Carbonate of potassa	2.95
——— lime	1.17
——— magnesia	1.56
Phosphate of magnesia	1.73
Carbonate of soda	1.91
Phosphate of soda	.09
Carbonate of lime	1.30
Phosphate of iron	3.84
Hæmatosine	140.27
Unaccounted for	8.35
	1000.

The blood in Müller's case must have been diseased to an extraordinary extent, since the quantity of sugar is more than five or six times that obtained by other individuals. I should infer also, from the small proportion of water compared with the fixed materials, that its density must have been much greater than in the specimens mentioned in TABLE XXV. With respect to the existence of urea, Dr. Rees informs me that he is certain of the fact in those instances in which he examined diabetic blood. It is well known that the urea adheres so firmly to the sugar in diabetic urine, as to have misled chemists; and the question arises, whether this may not have happened in Müller's analysis. One remark, however, seems to be called for particularly in this place; it is not for a moment to be expected that the composition of the blood is always the same in such a disease as diabetes, it must vary from day to day, and from hour to hour, according to the play of the stomach, the kidneys, and other organs, and, accordingly, negative facts by no means nullify positive ones, nor are they of equal value. In diabetes the saliva is remarkably glutinous, and contains sugar; a distinct saccharine odour has been observed in the halitus from the lungs; and Mr. Macgregor detected a larger quantity of sugar in the stomach without regard to diet, than is ever found there during health, and he also found it in the fæces of diabetic patients.

Vesaniæ.—The proximate cause of *mania* has never been determined, since we are totally unacquainted with the nature of the connection between mind and matter. Dr. Cullen referred the bodily disease to the excitement of a subtile, moveable fluid included in every part of the medullary substance of the brain and nerves. Sir A. Crichton follows out this hypothesis, and describes the fluid upon which the nervous power depends, as secreted in the medullary substance of the brain; and he endeavours to prove that the cause of insanity is a morbid action of the vessels, by which this fluid is not only altered in quantity but also in quality. This is tracing insanity back to the blood. Dr. Abercrombie refers many cases of insanity to the blood. Madness may be produced by the introduction of poisons into the blood, and, it is said, by the transfusion of the blood of a different species. There are many of its symptoms which indicate that the vital fluid is deeply concerned, and it is transmitted hereditarily by the blood.

I may avail myself of Dr. Cullen's third class *Cachexiæ*, to state briefly the doctrine promulgated, to effect authoritatively, in the "Library of Practical Medicine," as regards tubercle, carcinoma, and melanosis. It is there held, that these three diseases are, perhaps, never induced by local causes, since they are generally met with in several organs of dissimilar structure at the same time; since the removal of the diseased formation in one part is often followed by the development of the same disease in other parts, as after the amputation of a cancerous breast; and since local states, as congestion, inflammation, hæmorrhage, &c., are the means through which these affections are developed, only in those subjects in which a predisposition or tendency to the morbid deposition exists. Dr. Symonds says, "we may advance a step further, and attribute

the constitutional fault on which these diseases depend to the blood." "It is true that blood of a good quality may be sent to an organ, and yet the secretion and nutrition may prove very vitiated, in consequence of some disturbance of those complicated affinities which regulate textural changes; but if the same kind of substance be produced in tissues of very dissimilar organisation, as, for instance, upon mucous and serous surfaces, in the coats of the intestines and in the substance of the brain, it seems far more probable that the deposit is derived from a common fluid which pervades them all, than that similar derangements should occur in structures so dissimilar." The doctrine is not that the morbid deposit must have actually pre-existed in the blood, but that this fluid is so affected as to be ready for the secretion of the matter, wherever local conditions are presented; and the reasoning is confirmed by the fact, that the morbid substances are occasionally found in the blood itself, sometimes within the vessels, and sometimes after extravasation.

Tuberculous Cachexy and Secretion.—This state of the blood is either hereditary or acquired, the former corresponding with the *strumous habit*. There are two principal varieties of tuberculous secretion: 1. The semitransparent grey tubercle, constituting miliary granulations in the lungs, and pearly excrescences or semitransparent patches upon serous membranes, which are lymph (fibrin) depraved and insusceptible of organisation. 2. Opaque, rounded, friable deposits, of a yellowish-white colour, composed of "albumen, fibrin, gelatin, salts of soda and lime, and water." Thenard found unsoftened tubercles in one instance composed of,

Animal matter		98.15
Muriate of soda	}	1.85
Phosphate of lime		
Carbonate of lime		
Oxide of iron		a trace
		100.

Other tubercles, which had undergone the cretaceous transformation, were composed of 3 parts animal matter to 96 saline matter. The formation of tubercle implies an alteration of the blood itself. That change having occurred, the same disorder in the capillary circulation, which otherwise might have led to the effusion of serum pus or blood, may cause the secretion of tubercle; or there may be a simple deposition of this morbid substance in place of the normal secretion, whether nutritive or perspirable. When strumous persons are affected with external inflammation, the morbid state of the blood is indicated by its products. The matter of suppuration, for instance, is thin and curdly. In the process of healing, tardy or fungous granulations indicate the effusion of a liquor sanguinis, "either little susceptible of organisation, or running into a rank, degenerate growth." "Whether the matter be called tuberculous, scrofulous, or strumous, it implies an imperfectly organisable or absolutely non-plastic matter secreted from unhealthy blood." Such is the language of the last writer on practical medicine. How much is it to be regretted that men's minds should have been diverted, for the last forty years, from the true seat of these direful maladies, and that at this time of day we should be in possession of so few facts in relation to an object of our senses, and of our available means of acquiring knowledge, viz., *unhealthy blood*.

It has been remarked, that the colour of the blood in consumption is the very opposite to that of scurvy; that it is universally of a bright red, inclining somewhat to purple. The muscles, also, have been observed to be of a bright red colour. Andral says, the blood of persons predisposed to tubercular deposit is serous, and deficient in fibrin and colouring matter. Dr. Parr referred the scrofulous diathesis to a redundancy of albumen and oxygen, with a deficiency of azote. Dr. Reid Clanny has recorded two analyses of the blood of young men labouring under consumption. The more important peculiarities in both cases were, an excess of water, a diminution of albumen, and a remarkable deficiency of salts; in one there was a great increase of colouring matter (red corpuscles), and in the other an increase, but to a much smaller amount.

Carcinoma. — This term designates a class of morbid formations, which have for their common base a peculiar matter generated in a particular diathesis. Many of these have been described as specific independent diseases; but that they are intimately allied is proved by the fact that they occur contemporaneously in the same individual, nay, in the same organ; that they originate in the same state of system, and all show a remarkable tendency to destroy the tissues in which they are located. The class includes *scirrhus*, the different varieties of *sarcoma*, *lardaceous matter*, *colloid matter*, *fungus hæmatodes*, and *encephaloid matter*. Dr. Carswell's opinion is quoted by Dr. Symonds, that the carcinomatous matter is first formed in the blood. A strong argument in favour of which is, that it has been found in veins remote from the local seat of the disease, as in the vena portæ, and in blood effused into the cellular tissue, and upon the surface of organs. And the circumstance that diseased absorbent glands occur in the vicinity of the local deposit, is no argument in favour of the opinion, that the system becomes affected subsequently to the morbid growth, since the disease in the glands consists of mere enlargement and induration, such as may occur in the neighbourhood of any inflamed part. The difference in the local expression of the disease

depends upon the nature of the tissue, the tendency of the secretion to become organised or not, and other external and internal causes. Carcinoma, in this general sense, is a product of diseased blood; it may either be formed within the vessels, of which an instance in the case of encephaloid kidney was given in a former lecture, or it may be secreted. "The diseased secretion is, for the most part, promoted by congestion, inflammation, or local injury, or by any circumstance promoting a supply of blood to a part; but inflammation is more frequently the concomitant than the precursor. When the disease is in a state of open ulceration, the fluid which exudes is thin and sanious, and so utterly unlike the pus of healthy inflammation, as to indicate the altered condition of the blood. The constitutional symptoms, like the local malady, are but the effects of a cause common to both, viz., the morbid condition of the blood." To which it may be added, that sad experience has too often proved every local means of treating these diseases to be unavailing, aye, for the most part, not excepting the surgeon's *Practical Art;* that every hope of combating their malignancy must centre in the blood, in an improved knowledge of the morbid states of the blood, and of the effects of remedies upon the blood; and that an apathy in the pursuit of organic and microscopical chemistry, not to say a total neglect of it, in our public hospitals, is a dreadful sacrifice of the interests of humanity.

Melanosis.—The matter which constitutes this unorganised product of the blood is of a dark brown, deep blue, greenish black, or black colour. It is homogeneous, destitute of any particular smell or taste, and more or less inspissated, but occasionally liquid; it contains a large proportion of carbon, and putrefies slowly. According to M. Barruel, melanotic matter in man is composed of fibrin, a blackish colouring matter, a small quantity of albumen, a salt of sodium, phosphate of lime, and oxide of iron. It resembles the crassamentum of blood, with the addition of the black pigment; and the latter is supposed to be similar to that of the hair, the choroid coat, and the rete-mucosum.

TABLE XXXVII.

Analysis of Melanotic Matter from the Horse. By M. Foy.

Water	187
Albumen	150
Fibrin	62
A highly-carbonised principle, probably altered cruor	314
Muriate of soda	37
——— potassa	50
Carbonate of soda	25
——— lime	37
——— magnesia	17
Tartrate of potassa	17
Biphosphate of lime	87
Oxide of iron	17
	1000

The analogy between this matter and the blood is very obvious, it is evidently formed of its different elements, including a colouring matter which is more or less analogous, but not identical with that of the blood. Melanotic matter is found in the blood, under circumstances which leave no doubt of its having been formed there. Dr. Carswell observed it in the minute veins of the liver; and Breschet and Cruveilhier saw it in a liquid state, in the minute blood vessels on the surface of serous and mucous membranes. Dr. Symonds says, it occurs most frequently in the "melancholic or venous temperament;" and the wide extent over which it is diffused, occurring, as it is known to do in every tissue and every organ, shows that it is a disease not depending upon a partial but upon a general vitiation of the blood.

Scurvy.—There can scarcely be a doubt that this disease is produced by several causes which act directly upon the blood, and that the blood presents various shades and grades in its morbid condition, with one circumstance common to all—a deficiency in its coagulating power. In this respect, scurvy resembles the hæmorrhagic diathesis; but the former is acquired, and the latter hereditary; and we have at present no clue whatever to the efficient cause of the morbid state of the blood, referred to under that term in the last lecture. As remarked long ago by Mr. Hunter, the nutrition of the system is the final cause of the coagulation of the blood. The two most prominent causes of scurvy, are an excess of salt in the blood and defective diet; I will, in the first place, illustrate this.

Two cases of scurvy, which there is every reason to believe were occasioned by a want of due nourishment, and are more to the purpose than any others that I have met with, are recorded by Dr. Milman. The symptoms were debility, inactivity, pains, dyspnœa, brown tongue; spongy, bleeding, corroded gums; horribly offensive breath, extreme emaciation, stiff and hard skin; cracks in the legs and arms, pouring out a thin, ichorous fluid, and covered with large scabs; high-coloured urine. The subjects of this disease were two women: "neither had lived in a cold, moist air, nor in a low country, nor had salted meat been their food." Their residence was the high and sandy heath of Brandon; but for several months previous to their illness they had lived entirely on tea, without milk or sugar, and bread, without any other article of diet whatever. By means of an improved diet, with milk and a little Peruvian bark, they speedily recovered; and the author remarks, that in order to maintain the fluids in a

healthy state in the human body, there must be a continual renewal of them by healthy chyle, and an expulsion of effete particles: if there be not, "they soon follow their own nature;" and in addition, this want of nourishment deprives the constitution of the necessary degree of plethora: hence the materials taken into the blood from the tissues, instead of being expelled by some of the emunctuaries, will be accumulated, and spread their influence over the whole mass; "but if a fresh supply of food can be procured, even of animal nature, experience has shown that we can live a great while on it consistently with health."

M. Denis describes the case of a patient, aged 15 years, as follows. There were reddish spots on the skin, ecchymosis occurred from the slightest contusion, gums swelled, pale and hæmorrhagic, superficial ulceration in the mouth which often bled, respiration fœtid, saliva alkaline, urine sometimes acid sometimes alkaline, of a sufficiently high colour; face pale, flesh soft and bloated, vital powers depressed, digestion languid, frequent hæmorrhage from the stomach and intestines. The whole of these symptoms indicating a general cachochemia came on in fifteen days, and the patient died rapidly with hæmoptysis. Of the blood after death, 1000 parts contained

Fixed neutral soluble salts ... 7 parts,
Soda ..... 1 part,

instead of

Fixed neutral soluble salts ... 6 parts,
Soda ..... 1 part.

It resembled in appearance the blood in the case of typhus fever described in the last lecture; but it contained no ammoniacal salt, exhaled no particular odour, and its surface became red on exposure to air. M. Denis seems to entertain no doubt that the diffluent state of the blood was occasioned in this case by an excess of chloride of sodium. The extravasations are referred by him to softening of the capillary parietes, and the pressure of red blood through pores and vessels which do not in general admit of its passage; and the flaccidity of the flesh, and the erosion of the integuments, to the chemical effect of the sea-salt upon some of their constituent principles. But he admits that it still remains a question, Is the blood too saline in every stage of sea-scurvy? and upon this he remarks, it is perhaps useless, in most cases, to look for uncoagulable blood during life, since arrived at that state it is incompatible with life; it can only, perhaps, exist in dying, and after death. Blood, where sea-salt, or an ammoniacal salt, occurs in excess, is constantly restored by the elimination of the salt; but they do not influence the economy less on this account, because the minute quantity which the blood retains, or that which it acquires in proportion as it loses its abnormal quantity, suffices to produce all the injurious effects of a foreign substance, without completely disturbing the functions essential to life, and without preventing the coagulation of blood drawn from a vein. It is only at the time when the blood ceases to be able to disembarrass itself of its excess of salt, that it becomes uncoagulable, and rapidly mortal. Hence it is that so many individuals have failed to detect anything remarkable in the blood of scorbutic and typhoid patients, and in many other diseases.

Knowing as we do the charm which attends the discovery of facts which support and explain our preconceived notions, and looking to the minute operations implied in the above, we cannot doubt that it requires confirmation, but in the mean time it is corroborated by clinical observation. An excess of salt has the same tendency as a diet defective in nutritive matter, and from the very great aggravation of the disease when the two causes are combined, as in the scurvy, as it occurs during long voyages, there can be no doubt that the chloride of sodium contributes greatly thereto. The detriment to the coagulating power of the liquor sanguinis, and with it to the nutritive qualities of the blood, may be produced by other causes besides those mentioned, and visceral congestions with hæmatitis may be modified by a scorbutic tendency; but we have very different diseases described by physicians under the term *purpura*, and the blood has presented very different appearances. The whole of this subject requires a searching microscopico-chemical inquiry. As described by the surgeons in Lord Anson's expedition, in the beginning of the disease scorbutic blood flows from the arm in different shades of light and dark streaks, as the disease advances it runs thin and black, and after standing it turns thick, and of a dark muddy colour; there is no regular separation of its parts, and the surface in many cases has a greenish hue; in the third stage it is black as ink, and although kept stirring in the vessel for many hours, as described by Dr. Lind, has only the appearance of wool or hair floating in a muddy substance, and post-mortem, the blood in the veins is so fluid that by cutting any considerable branch the part of the body to which it belonged might be emptied of its black and yellow liquor, the blood extravasated in different parts being precisely of the same kind. Mr. Henderson, the most recent writer on sea-scurvy, who has actually witnessed it, says it may be known to be present by the appearance of the blood on cooling; when abstracted in small quantities to relieve pulmonic symptoms of uneasiness or oppression, it resembled, in some respects, inflamed blood, but he compares it rather to the blood of a weakly pregnant female. After coagulation the serum was copious, and of a yellowish colour; the clot very dark, soft, easily broken up, rather

convex than cupped on its surface, and covered with a very curiously variegated or streaked coriaceous coat, of a greenish hue, not easily mistaken when once carefully observed; it sometimes cools in the form of a thin jelly without coagulating, and has a firm film on its surface, with here and there a few drops of serum bursting through. Mr. Henderson believes that the want of a sufficient quantity of nutritious matter conveyed into the blood is the cause of this its scorbutic state, and that this fibrin must have become altered in quality or had entirely disappeared. Amongst its consequences were ecchymosed spots on the surface of the body and upon internal organs, escape of blood into the intestines and internal cavities; in one case two quarts of "peculiarly attenuated blood" were found in the left cavity of the chest, which appeared to have been poured out by the pleura costalis; in another case the abdomen was filled with bloody serum; and in many, the viscera were so soft, that they could scarcely be touched without penetrating their substance. Post-mortem the blood was quite fluid, of a dark colour, and without tenacity.

It is remarkable that we should know so little respecting the effects of *salt* upon the animal economy, a substance so essential to life and health, and accordingly so generally diffused over the surface of the globe. Excess or deficiency of salt in the blood, is injurious to health; the properties both of the liquor sanguinis and of the red corpuscles are modified by either. By excess of salt the vesicular membrane is contracted and corrugated, and the corpuscle probably modified in more essential particulars; by its deficiency the liquor sanguinis is rendered a solvent of the vesicle and of its colouring matter. Whatever the causes of scurvy, there is no doubt that the symptoms of this disease are greatly aggravated by salted diet; and yet it has broken out in districts of Silesia where there was no salt, and has been cured by dealing out rations of salt to those affected. I have seen instances of children presenting a sickly aspect; of little girls in particular, of a pale, dull or violet hue, in whom I have inferred that the foundation for some constitutional disease was being laid; and having ascertained that they were habitually averse to salt, or that this point of diet had been unattended to, by the simple prescription of a little of this condiment daily, I have found the colour return to their cheeks, and their health improve in a very few weeks.

Jaundice.—In this disease the whole blood is deeply tinged with the colouring matter of bile. The latter may be observed in excess not only in the serum, but when the blood is buffy, in the clot. On drying the buffy coat it exhibits a deep yellow hue, particularly if viewed by transmitted light. By adding an equal quantity of sulphuric acid, diluted with twice its bulk of water, to the serum of jaundiced blood, the identity of the colouring matter with that of bile will be rendered evident by the conversion of its yellow into the characteristic green hue of acid bile. Lassaigne, Lecanu, Mr. Kane, Denis, and others, have verified these statements. Lecanu, Kane, and Jennings, obtained the resin of bile from the same kind of blood. The following analysis is given by M. Denis. The blood was drawn from a young man, having a slight pain in the epigastrium of some days' duration, constipation, loss of appetite, thirst, fever, jaundice taking place suddenly, skin intensely coloured; and a cure was obtained rapidly by the antiphlogistic regimen. The blood was buffy; spec. grav. 1.053; temp. 98° 3'; and the serum high-coloured, but transparent.

TABLE XXXVIII.

Analysis of the Blood in Jaundice.

Water	815	
Albumen	53	62.5
Fibrin	9.5	
Fixed sol. neutral salts	4.5	8.
Soda	1.5	
Other salts	2.	
Neutral fatty matters	6.	
Yellow and blue col. matter	14.55	
Corpuscles	93.95	
	1000.	

Comparing this with healthy blood of the same density in TABLE XXIV., it will be found to contain of fibrin 9.5 parts instead of 2.232; of soda 1.5 instead of .996, indicating hæmatitis; and of colouring matters 14.553 instead of 2.624, indicating jaundice. Inflammatory fever is a frequent accompaniment of bile, or its elements in the blood, but by no means a necessary effect. Denis could detect no foreign matter whatever in jaundiced blood.

Without attempting to supply the numerous omissions in this brief statement, I may just remark that there can be very little doubt the blood has much to do with *erysipelas* in all its varieties. The frequent association of this disease with deranged states of the biliary system, seems to indicate, that, probably, some of the numerous elements of bile, which have not yet been detected in the blood, may be concerned in its production. *Diffuse cellular inflammation*, again, from venesection or from the exposure of an abraded surface to the fluids of a subject *recently* dead, resembles very closely the disease which results from the bite of venomous serpents; it is not owing to the absorption of putrid matter, but to a specific virus, since putrefaction destroys that virus. Lastly, the state of the blood in the diseases comprised in the class *Locales*, opens out a

volume of itself. Dr. Reid Clanny gives the analysis of the blood in a most inveterate case of idiopathic lupus (LANCET, Feb. 2d, 1833); it contained an augmented proportion of water to the extent of 15 parts in the 1000, and nearly double the usual proportion of salts. But we have to regard many of these local affections as symptoms, in fact, produced by morbid states of the blood, or as original affections producing morbid states of the blood; this is illustrated by *Polydipsia* and *Constipatio*. The final purpose of *thirst* appears to be to dilute the blood. It becomes excessive whenever copious evacuations have been produced, whether by hæmorrhage, perspiration, or otherwise; when spices, salines, and alcoholic fluids in excess, and poisons, have been introduced into the blood. Dupuytren and Orfila confirmed Bichat's conjecture, that thirst may be quenched by injecting fluids into the veins. When water, milk, or whey were thus injected into the veins of dogs suffering under thirst, after exposure to a burning sun, the animals are said to have lapped just as if they were taking fluid from a vessel; at all events, they never failed to have their thirst appeased. On the other hand, Dr. Burne, in his recent treatise on Constipation, justly remarks, that when excrementitious matters are retained in the bowels, they undergo changes from the absorption of their fluids; which latter being "necessarily conveyed into the blood, adulterate and corrupt it." And in Dr. Burne we have an instance of a London hospital physician, with the same boldness which characterises Dr. Ferguson's work on Puerperal Fever, declaring the simple truth as dictated by common sense, that "from impaired digestion, there must proceed impure chyle, from impure chyle impure blood, and if impaired digestion produced and prolonged by habitual constipation, should endure, how can we wonder that the whole mass of blood should become corrupt, or that the solids derived from that blood should be corrupt also? How can we wonder that eruptions should disfigure the body, or that intractable or malignant diseases should break out and shorten life?"

AN INQUIRY

INTO SOME OF THE

CONSEQUENCES AND CAUSES OF FAILURE

OF THE

NEW OPERATION FOR THE CURE OF STRABISMUS, OR SQUINTING.

By E. W. DUFFIN, *Surgeon.*

THE observations hitherto published on the division of the tendon of the internal rectus muscle of the eye, for the cure of obliquity of vision, have been principally confined to the various methods of performing the operation, or to the suggestion of some new instrument to facilitate the accomplishment of that object.

The few cases thus far reported have been all so highly-coloured, and so remarkable for their complete success, that, were we to credit implicitly their various authors, we should be led to the happy conclusion, that failure is next to impossible, even in the hands of the most unskilful; and that in no instance will any visual deformity remain when once this devoted tendon is severed from its attachment to the eyeball. That it is a very scientific, beautiful, and highly satisfactory operation in dexterous hands, no one can deny; perhaps the most so of any in surgery; but, that cases both of complete and partial failure are of daily occurrence, though vaunted as successful, will, I imagine, be readily conceded by every candid surgeon, whose field of observation has been sufficiently extensive to enable him to arrive at any really accurate, practical, and legitimate conclusions on the subject. Indeed, so far from being universally successful, there is too much reason to fear that the operation will, ere long, fall into unmerited disrepute, in consequence of the careless, imperfect, and injudicious manner in which it is often performed, and the inauspicious results that have been occasionally observed to proceed from it.

To divide the tendon of the adductor oculi really well, i.e., with *certainty*, and in an *efficient manner*, so as to secure the utmost benefit capable of being conferred at the smallest possible cost of suffering and inconvenience to the patient, requires much more dexterity, neatness, and address than is commonly believed. At first sight the simplicity of the operation is such, that almost every one is induced to attempt it, but comparatively few succeed to the full extent, in conformity with the principles just inculcated.

To attain this delicacy and excellence, it is essential that the surgeon should perform the operation a vast number of times,—that the first attempts, therefore, of the unpractised almost invariably prove only partially successful, cannot surprise us. I have myself operated one hundred and fifteen times, and assisted others to an almost similar extent, as well as had opportunities of examining a variety of cases operated upon by individuals of every degree of talent, and feel satisfied that the statements I make will be found correct by every impartial inquirer. Many of my own early cases were only partially successful, and some of them were decided failures. The original obliquity of vision, it is true, may be removed; but if in its stead be substituted a staring, vacant, projecting eye, of apparently disproportionate size, or a dis-

agreeable leer; or, if a mere alteration only in the nature of the obliquity be effected, it is very questionable how far the expression of the eye is bettered by the change.

When the operation is imperfectly performed, a few fibres of the tendon, perhaps, or some apparently insignificant band of fibrous adhesion having escaped the scissors, the patient loses the power of turning the eye horizontally inwards, so as to bury the cornea in the nasal canthus to the same extent that he could do previously, and thus the inexperienced may be misled; but if, in his effort to accomplish this movement, it be found that the patient is still capable of directing the pupil either upwards or downwards, and only slightly inwards, we may rely upon it that the operation is incomplete; and that when the eye is left at rest, this modification of the original evil will, in a minor degree, be found to persist.

Now, the operator being satisfied, from the extent to which he may have laid bare the sclerotica, that he must have divided the whole of the tendon of the adductor, often erroneously concludes that this slight obliquity arises from sympathy, and that in the course of time it will entirely disappear. But, unless we can imagine that the unsevered parts will gradually relax or become elongated, it is impossible that the eyeball can ever emancipate itself thoroughly from its confined position. I have lately examined several cases that were operated upon when this mode of relieving strabismus was first practised in this country, and do not find that time has thus far effected any amelioration, nor do I think it at all probable that further improvement will ever take place, but the contrary. When the operation is complete in every respect, the patient is wholly incapable of directing the pupil of the eye beyond the centre of the orbit, either in a horizontal or oblique line. In the course of a fortnight or three weeks after the operation, if the tendon has been simply divided, and not disturbed, or displaced, by pushing the muscle back into the posterior and lateral part of the socket of the eye with the handle of a scalpel, as has been recommended by some surgeons, it appears, either that a new insertion of the mode takes place, so that the patient recovers, in a very considerable degree, the power of directing the pupil towards the nasal canthus; or that certain of the other muscles, by a concurrence of action, acquired by the natural efforts to render vision single, enable the patient to perform this movement. If any reunion take place, and there is no reason why this may not happen, the fact that it can be established without return of the original evil is very important, and militates against the practice of displacing the muscle, as above stated, after its attachments are separated.

This circumstance has been noticed by Mr. Liston, Dr. Franz, Mr. M'Murdo, and, indeed, by every other operator, each of whom has explained it on a different principle, and remedied it by different means. The theory which is most correct, therefore, remains to be proved by future inquiry.

In the report of Mr. Liston's cases, in the number of THE LANCET for July 18 of the present year, Mr. Ancrum observes, "In some instances, after the internal rectus has been cut across, the patient possesses the power of turning the eye inwards and downwards; this *arises from contraction of the inner border of the inferior rectus.*" "Mr. Liston," he continues, "is in the habit of partially or completely dividing this muscle in all these cases." Now, I do not by any means call in question, that in some few instances it may be necessary to divide the inferior rectus partially or completely, because I conceive it quite possible that this muscle may be implicated in the production of the deformity, as well as the adductor; but when, after dividing, as I have thought completely, the rectus muscle, and the patient has still retained the power of directing the eye downwards and a *little inwards*, I have always found, on instituting a very careful examination, that a few upper tendinous fibres, or a band of adventitious *cellular* attachment, still remained unseparated; and, on dividing these, the patient could no longer direct the pupil to the nasal canthus, nor carry it beyond the centre of the orbit. It is truly astonishing how very small a portion of this fibrous adhesion remaining unseparated is sufficient to mar the finish of the operation. These fibrous bands or digitations are sometimes seated very far back, even beyond the greatest diameter of the eyeball. It is singular that in the dead eye they are so delicate, lax, and unresisting, as to be scarcely appreciable; indeed, it is with difficulty we can imagine them capable in any way of contributing to the deformity; when endowed with life, however, they are very powerful agents in retaining the eye in its unnatural position, and offer considerable resistance to the scissors on being cut. May it not be the supervention of this apparently unnatural adhesion that renders the strabismus permanent? In the first instance, there can be little doubt that the affection depends on muscular spasm by no means necessarily persistent. I think, moreover, I have observed this adherent fibrous character of the submuscular cellular membrane to be more extensive and marked in persons who squint most. The movement of the eye downwards and inwards, then, when the patient makes an effort to direct it to the inner canthus, after the complete division of the adductor, arises, I apprehend, from the conjoint natural action of the superior oblique and inferior rectus muscles, whilst the eyeball is still partially bound down by the tendinous bands of attachment alluded

to, and that all we have to do, 99 times out of 100, in order to succeed in perfectly rectifying this diagonal and abnormal movement of the globe, is to carry the dissection sufficiently far to separate completely these adherent fibres, however far back, high up, or low down on the sclerotica they may be seated. I have met with this feature in the course of the operation in almost every instance, and have always overcome it by the means just stated.

In no case have I ever cut the fibres of the inferior rectus; and in none have I ever dreamt of cutting the superior oblique muscle, as Dr. Franz informs us he has done, in order to remedy a position of the eye *upwards* and inwards, the reverse of that we have been considering. Dr. Franz, however, it appears to me, has deceived himself in this respect; indeed, I do not believe that any one has yet divided either of the oblique muscles, or that such an extension of the operation will ever be necessary. If we consider the following statement of Dr. Franz attentively, I think we shall be disposed to doubt whether he divided the superior oblique muscle, or only some unusual tendinous expansion or fibrous adhesion, such as above described. Indeed, the manner in which he relates that he accomplished the undertaking, convinces me that it could not have been the muscle which he cut:—"I proceeded," says he, "to the operation, and carefully and entirely divided the internal rectus muscle, as in all my former cases. I now removed the hook from the conjunctiva, and leaving the eye at rest, after the lapse of a few minutes, I examined its state again, when I was not a little surprised to find that the division of the muscle had not proved efficient, for, although the inversion was certainly modified, the eye was yet turned *upwards* and slightly inwards.* From the direction in which the eye now stood, and its movements obliquely *upwards* towards the glabella, I was induced to think that the present state of this eye, the internal rectus having been entirely divided, would be well adapted for an experiment to investigate the true action of the oblique muscles; and as the patient bore the operation with very little inconvenience to herself, I determined at once to divide first the superior oblique, in order to convince myself whether the present direction of the pupil depended actually on the action of the inferior oblique only, and then to divide the inferior oblique likewise, if the direction of the pupil should require it. I passed the hook again through the conjunctiva for drawing the eye outwards, *and without enlarging the wound in the conjunctiva*, passed the curved scissors under this membrane, cutting through the adipose and cellular tissues, with the blades of the scissors *so directed as to meet the tendon* of the *superior oblique*, which I soon distinctly felt between the blades, and divided, as was proved by the resistance, and the peculiar sound with which the division of a tendon is accompanied. On removing the hook again from the conjunctiva, and carefully examining the eye, I was not a little surprised to find that it was now perfectly straight, the pupil occupying its proper position; the division of the inferior oblique was, therefore, not requisite. The patient could not move the eye inwards, but in all other directions the movements were free."—*Med. Gaz.*, June 24, 1840. Now it occurs to me that it would not have been so easy a matter to arrive at the tendon of the superior oblique through an opening made in the conjunctiva at so great a distance from it. It might have been possible for Dr. Franz to have divided the second belly of the muscle, within a short distance from its transit, through the trochlea attached to the frontal bone; but he informs us, that he did not cut in that direction, but *with the scissors so directed as to meet the tendon*; hence, he must have been at least three-fourths of an inch distant from the only point at which he could have cut the muscle: to have divided any part of the *tendon* by passing the scissors through the wound *already made in* the conjunctiva, was next to impossible. Their points must have travelled over nearly one-half of a sphere, and been lost to the view of the operator long before they reached the object they were to cut. In my mind there is no doubt, that after severing the principal band of fibres, by which the adductor is inserted, Dr. Franz encountered an adventitious band of fibrous attachment, such as I have already described, seated so high up, that he was led to consider it the tendon of the superior oblique. From what I have myself experienced, I can very readily imagine any one falling into this error.

14, Langham-place, Regent-street,
Sept. 1, 1840.

* This movement of the eye *upwards* and inwards must be a very rare occurrence, as I have not witnessed it in any case. I have seen, in several instances, the *superior* rectus after the operation permanently pull the eye *directly* upwards, so as to conceal about a third of the cornea under the superior eyelid.

HÆMORRHAGE.—The gall-bladder has been observed filled with blood, having its source in the capillaries of the mucous membrane. In these cases intestinal hæmorrhage had occurred before death, and upon examination, no congestion or lesion could be found in the mucous membrane other than that which was seen in the gall-bladder.—*Cyclopædia of Anatomy and Physiology*. September, 1840.

THE LANCET.

London, Saturday, September 12, 1840.

At the present time there are thirty-four licensed lunatic asylums in the metropolitan district, besides the county asylum at Hanwell, and the hospitals of St. Luke and Bethlem. The number of individuals constantly under confinement therein amounts to 3000. The women are rather more numerous than the men; the lunatics are all adults, and the average age approaches 40; the majority of them are designated paupers, but many have been reduced from the class of industrious artisans or tradesmen, and some have been precipitated from the highest ranks by the deplorable malady of which they are the victims. We wish that, in order to excite attention to their sad case, we could now call up the melancholy troop before our readers' eyes, or were able, in imagination, to trace their history, their agonies, their sickening hopes, fears, horrors, and woes; and the confusion, trouble, and distress which their aberration has given to the thousand circles of life in which they moved. What a contrast between their past and present states; their past and their future prospects!

In the savage state, lunatics are destroyed or abandoned. In a well-organised society they are regarded with compassion, and treated with rational care, until life ends, or they are restored to reason. There has been an intermediate stage in the treatment of lunatics, in which they have not been destroyed, but have been imprisoned, and treated either with neglect or revolting cruelty. Society shrank from their destruction; but shut them up, and made no efforts to alleviate their sufferings, provide for their wants, or protect them from the hands of interested, irresponsible, cruel keepers. It is to be regretted that the intermediate stage has not passed away in England, and that there is still much in the condition of the 3000 lunatics, now within the metropolitan district, that is deplorable, and that every humane person will desire to see ameliorated.

It will be recollected that the 3000 men and women, designated lunatics, are *imprisoned*. They are imprisoned by society; they are confined under the authority of Acts of Parliament. Their keepers and superintendents have over them almost unlimited power; they may place them in solitary confinement, bind them hand and foot, and deprive them of food and air to almost any extent. This discretionary power may be indispensable; but it will not be denied that it should be exercised under the strongest safeguards and the strictest supervision. Now, do these safeguards exist? We unhesitatingly reply, that they do not. Compare the condition, in this respect, of the imprisoned criminal and the imprisoned lunatic. The criminal is visited regularly by the justices and by inspectors; the gaolers have a definite duty to perform, and are neither interested in prolonging the imprisonment, in depriving the prisoner of food, nor in crowding great numbers together in cells. The prisoner can complain of the conduct of the gaoler, and his complaints command at least a certain degree of attention. The case of the lunatic is in all these respects reversed. The death of every imprisoned criminal is investigated by the Coroner, and this is done with the sanction of the Legislature, which has not shown the same regard for the imprisoned lunatic, but has left the inquest upon his body contingent upon certain accidental circumstances. It will not be denied that the checks which the wisdom of Parliament has devised for the care of criminals, are necessary; is there any just reason, then, why the innocent lunatic should not enjoy the same merciful protection?

It has been established that the imprisonment of criminals, with all the care that has been taken, causes much sickness, and destroys many more lives than the executioner; and if there be any truth in the foregoing considerations, the imprisonment of lunatics

will be found to be still more fatal. The annual mortality of prisoners is 16 in 1000; and the returns which we have before us, show that the mortality of lunatics in the thirty-four licensed houses of the metropolis is 156 in 1000; nearly *ten* times as high as the mortality of criminals.

We call public attention to this fact. We shall examine it dispassionately; and shall discuss the returns upon which it rests with all their qualifying circumstances. Declamation upon such a subject would be misplaced. It is far from our desire to excite any unjust prejudice against the proprietors of the licensed houses. The heads of such establishments have very onerous, delicate, responsible duties to perform; and some of the managers are gentlemen of great skill and humanity: but the painful conviction has forced itself upon us that the system is altogether vicious, and that the lunatic is its victim in 7 cases out of 10.

By the Act of Parliament, the order for the reception of a patient into an asylum must be of a prescribed form; the Christian name, surname, and abode of the patient, and of the persons by whose authority the patient was sent, or other circumstances of connection, must be stated, as well as the name, age, residence, and occupation of the patient; whether he ever have been confined in any other asylum; and whether a lunatic under a commission in Chancery; and if the certificate be not signed by *two* medical practitioners, the special circumstances why it was not so attested must also be stated. Copies of the order, given with the patient, must be transmitted within two days to the clerk of the commissioners. The order for the reception of *pauper* lunatics, is slightly different. Colonel Sykes justly remarks that, "when once *they* get shut up in a mad-"house, it is indeed difficult for them to "gain their liberty."

The persons who keep houses for the reception of insane patients are subject to the *penalty of a misdemeanour*, if they neglect to transmit the order and certificate to the clerk of the commissioners within two clear days, or neglect to report the death or removal of a patient. It may, therefore, be assumed that the official returns, founded upon these certificates, are correct; and it is pretty certain that the number of deaths is not exaggerated by "the persons who keep houses for the insane."

The returns apply to a period of nearly seven years; they are complete for the six years ending May 31, 1832. The number of lunatics in confinement at the beginning of the period (June, 1833), was 1435; at the end of the period (May 31, 1839), 1713. In the six years, 5386 admissions were registered, and 5108 patients discharged; namely, 1504 by death, and 3604 by other causes, the number of recoveries not being specified. As 1504, out of 5108 discharged, left the houses dead, the mortality of the cases treated was 29 per cent. Of every *three* who entered, *one* came out dead! The term of treatment varies very considerably: in some asylums the patients are detained one year on an average; in others, three years. To compare the mortality of different asylums, it will, therefore, be necessary to ascertain the *annual* deaths out of a given number existing. The average number constantly under confinement in the six years was 1612; and that is equivalent to 9671, confined one year; the deaths in the six years were 1504; the *annual* mortality was, therefore, nearly sixteen per cent. The mean term of treatment was one year and ten months, during which time, as has already been stated, 29 per cent. died in the licensed houses.

Sixteen per cent. per annum is a high rate of human mortality, for the mortality of the general population at that age does not exceed 1½ per cent. annually. But it cannot be denied that insanity is a fatal disease; it has an unquestionable tendency to shorten life, and it would be unreasonable to expect the mortality of the inmates of the licensed houses to be so low as 1½ per cent. Unfortunately, there are no data for calculating the mortality of the insane under the most favourable circumstances; but in the absence of such data, it will be fair to take the mor-

tality of asylums where the lunatics are believed to be judiciously treated, to have a liberal diet, and not to be crowded. In the nine years 1824-32, at the Gloucester County Lunatic Asylum, the mean number resident was 85, and six died annually; the annual rate of mortality was, therefore, 7.2 per cent. The mortality in asylums ought not, in fact, to exceed 7 per cent. annually. The deaths in the licensed houses at that rate would have been 673, but they were 1504; or, 831 perished by *causes which do not appear to have been* NATURAL!

Let us take a less favourable case, where the patients were exposed to worse influences. In the establishments of Bethlem, St. Luke, Stafford, York, Lincoln, Gloucester, and Hanwell, 19,782 patients were treated; 22,295 lived one year, and 2057 died. The *annual* deaths out of 100 living were 9; and at that rate the deaths in the metropolitan houses would have been 870 instead of 1504.

The second step in this inquiry will determine the classes of patients, and the particular houses in which the tremendous mortality of lunatics, indicated by the Returns, occurred. We shall pursue the inquiry on to all its consequences, and shall agitate the subject until the condition of the lunatic ceases to be a disgrace to this country; for it is quite evident that the Metropolitan Commissioners in Lunacy cannot be trusted, as, through ignorance or neglect, they have never remedied the evils which they must have witnessed, and no use whatever has been made of the decisive Returns placed at their disposal by the Acts of Parliament. The system must be fixed upon an entirely new foundation.

THE *Times* has some very judicious observations on the remarkable document issued by the Poor-Law Commissioners, and published in THE LANCET of last week. We extract the paragraphs on the rate of remuneration, as they come from a disinterested source, and are quite in accordance with the opinions advocated in this Journal, which has been designated in certain quarters "the organ of the Medical Profession." We feel that the Medical Profession never suffered a bitterer insult than the imposition of the Poor-Law Commissioners in their present places, under the Vaccination-Extension Act. But the remarks which we felt it our duty to offer, on the shabby eighteenpenny fee, were dictated by a regard for the interests of the poor, and an anxiety for the success of the operation.

"The Commissioners, without laying down an inflexible rule, state, that having made inquiry, *they 'have arrived at the conclusion that a payment of* EIGHTEENPENCE *for every case of successful vaccination will, under ordinary circumstances, be an adequate remuneration to the contractor.'*

"The Commissioners doubtless consider that the extreme economy with which the department of health has been usually administered in the workhouses under their control, was the probable cause of their selection for the office of a board of health on the present occasion; and certainly, to assign any other reasonable cause would be a difficult task. It seems, therefore, to be their intention to carry out the same principle in settling the vaccination contracts. To us, nothing could prove more conclusively their unfitness for the new function imposed upon them; and we entertain the most serious fears that the benevolent intentions of the Legislature, in providing the means of gratuitous vaccination, will be entirely defeated by this niggardly economy. As it has happened in many of the workhouses (of some recent scandalous cases we need not particularly remind our readers), so we fear it will happen again, that respectable practitioners will decline the mean and unworthy scale of remuneration proposed, and that the lowest class of persons possessing a qualification will come in and supply their places. It will be replied, perhaps, that the contractors are only to be remunerated for *successful* cases. But what is to be the criterion of success? Their own reports. The Commissioners have not yet invented, and we suspect that they will be at loss to invent, any practicable check by which worthless adventurers in medicine can be compelled to render a true account of the results of their practice. It is the peculiar boast of the MORISONS and the EADYS that they are *always* successful. * * * *

"If this calculation is correct, we should have a medical practitioner exclusively devoting at least twenty-four fixed days in

the year to the duty of public vaccination, and binding himself in addition to give attendance at his own residence whenever required, for a *maximum* remuneration of £10 2s 6d, according to the Commissioners' scale. It may be said that the scale need not be invariably followed; but who can doubt, after the experience which we have acquired in the parallel case of the medical attendance at workhouses, that it will be followed wherever a practitioner can be found willing to offer his services upon such degrading terms? Motives will not be wanting to induce empirical pretenders to embrace even such terms as these, not indeed for the money's sake, but for the purpose of insinuating themselves into practice, and superseding, with the poor and ignorant, abler and more honourable competitors.

"We emphatically protest against this miserable system. If it is worth while to make public provision for the vaccination of the people, it is worth while to pay for it at such a rate as may secure the services of experienced, intelligent, and independent men. It is too bad, to see the generous spirit of legislation in which this Act was conceived in danger of being frustrated by the sordid economy of those to whom, by a most unfortunate mistake, its administration has been intrusted."

The Principal Baths of Germany; considered with Reference to their Remedial Efficacy in Chronic Disease. By EDWIN LEE. Vol. I. Nassau, Baden, and the adjacent districts.

IN the Number of THE LANCET for Aug. 29, we laid before our readers Mr. Lee's narrative of the opposition which had been offered by the authorities in Nassau to the practice of English medical men among their own countrymen, and of the inconvenience naturally resulting to visitors unacquainted with the language, and particularly to those who might feel a natural want of confidence in foreign physicians. On the present occasion we proceed to an analysis of the merits of his work.

Nassau, as is well known, derives its chief sources of riches from the numerous medicinal springs by which it is every where traversed. These are for the most part situated near the foot of a range of hills, called the Taunus, and, within the limits of a few hours' ride, present the most extraordinary variety of springs—sulphur, cold saline, hot saline, acidulous, chalybeate, alkaline, &c., besides the waters of Selter, Fachingen, Geilnau, &c. Wisbaden is the capital of the duchy, and is the most frequented by visitors, who, in consequence of the increasing convenience of steam navigation and railroads, are each year augmenting in numbers. To give a single illustration of this numerical increase, says the author,—

"I may mention, that when I was at Wisbaden, nine seasons ago, in the month of June, at a table d'hôte in the Four Seasons hôtel, of not less than sixty persons of different nations, I was the only representative of Britain at the table; whereas in the same room, in the same month of the present year, four-fifths of the number who assemble at dinner at four o'clock are British."

There is much truth in the following remark; but we do not wholly agree with the author in the concluding passage, which would lead to the belief in the specific nature of these springs. We should be much more inclined to look to other causes for an explanation of the benefits derivable from peculiar springs, and particularly to the hope and confidence of relief with which the patient may assist in his own recovery.

"Any work that attempts to specify certain springs as best calculated to relieve certain states of disease, can only lay down general indications, liable to many exceptions from particular circumstances and the idiosyncrasies of patients. Hence, also, the relation of cases, in proof of the efficacy of a particular mineral spring, is not in general much to be depended upon as a test of its medicinal properties; the less so, indeed, as the cases in which the waters have had a beneficial action are usually selected, while rarely is anything said of those who leave the place unrelieved, or in a worse state than before; which circumstance, I have reason to know, is more frequently the case than is supposed, and very often depends upon a suitable mineral spring not having been selected at the commencement, from the adoption of the partial advice of persons whose ideas of the efficacy of mineral springs are almost exclusively restricted to those of their own locality."

Certain springs have obtained a reputation for their beneficial influence upon certain diseases, as Ems and Cauterets, in pulmonary affections; Carlsbad and Vichy, in abdominal and liver derangements; Bourbonne les Bains and Wisbaden, in gouty, rheumatic, and paralytic complaints. But, as the author justly remarks, all pulmonary complaints will not yield to the baths of Ems, nor all rheumatisms to the waters of Wisbaden, any more than the former com-

plaints will, in our own climate, all give way to counter-irritants, or the latter to colchicum; in other words, we have no specifics, but, *ceteris paribus*, all persons affected with chronic complaints will, with judicious management, be very much relieved, and often cured, by a removal from old and pain-associated scenes and cares to a beautiful country, a fresh and healthful air, cheerful society, aided by certain active hopes in the mysterious workings of a bath prepared in nature's own cauldron, and mingled with various therapeutic minerals in its progress upwards to the surface. During a course of these baths and waters, patients are required to rise early in the morning, to walk, and often to bathe before breakfast; to live abstemiously, to ride or walk for a certain number of hours in the day, to avoid atmospheric vicissitudes by a careful attention to dress; in fact, as

"A high German authority on the subject has said, 'Whoever comes to a bath, and will be cured, must will it in earnest;' and it behoves every invalid, who wishes to give a mineral spring a fair chance, to have constantly in mind the object that brought him there, without being led to do improper things by the influence of habit or example."

Again:—

"The mind of an invalid who expects to derive advantage from mineral waters, should be as free as possible from cares and anxieties. Equanimity of temper should be preserved, and the gaming table, or other occupations which tend to disturb it, should be avoided. He should avail himself of the resources for amusement, and the facilities of associating with others afforded by watering-places, by which means the beneficial action of the waters will be materially promoted."

The principal springs of Wisbaden are the Kochbrunnen, which is the one almost exclusively taken internally; the Adler, the Vier Jahrzeiten, and the Schützenhof. The temperature of the Kochbrunnen is 151°; that of the three others diminishes gradually to the Schützenhof, which is 15° lower than the first. They contain a large quantity of common salt and gas, and on this account, together with their high temperature,—

"The action of the baths is exceedingly exciting, and, under proper management, extremely well fitted to procure the removal of long-standing and intractable diseases. In most instances the drinking a glass or two of the Kochbrunnen causes a sense of general warmth, with slight perspiration upon the forehead or lip. When its use is continued, it promotes the action of the skin, generally increasing its secretions, as also those from other organs, as the kidneys or the mucous membrane of the alimentary canal, though very frequently no sensible effects are experienced. Occasionally, however, unpleasant consequences ensue upon the taking two or three glasses, as headach, giddiness, flushing, throbbing of the temples, &c.; and if these should recur upon its repetition, the internal use of the water had better be discontinued, and a cold saline, as Kissingen or Homburgh, substituted, if circumstances indicate that these are likely to be beneficial."

The author accredits the Wisbaden baths with powers of relieving rheumatic and gouty pains of long standing; tic douloureux of particular nerves; paralytic affections, unaccompanied with symptoms of cerebral congestion; tardy action of the liver, giving rise to abdominal congestions; scrofulous enlargements, hypochondriasis, dyspepsia, amenorrhœa, dysmenorrhœa, cutaneous disorders, accompanied with deficient action of the skin, &c., upon the general principles we have before indicated, and which the author himself expresses in nearly similar terms. Thus he observes, upon the use of the baths in chronic scrofulous affections:

"Here the exciting and resolvent powers of the waters are exceedingly effectual, by improving and augmenting the secretions of the alimentary canal, and of the skin; and by stimulating the absorbent and vascular systems, mostly cause the speedy diminution of glandular and bony swellings.

"Another case, in which the Wisbaden springs are often eminently serviceable, is, where there is a general disordered state of the health, without the existence of any actual disease, or material derangement of any particular functions, except, perhaps, impaired digestive powers, as is very frequently seen in Londoners, and inhabitants of other large cities, closely engaged in trading, mercantile, or professional occupations; as also in those who have been resident in a tropical or unhealthy climate; such a state, though relieved and palliated for a time by medicines, not unfrequently terminates in serious functional or structural disease, if allowed to continue for a long period,—and nothing would tend more effectually to its removal than temporary absence from the cares of avocation, change of air, and mode of life, and the employment of a mineral spring, like Wisbaden, followed by that of a chalybeate water, in those cases where it is not counterindicated."

As a summer residence,—on account of its position in a valley surrounded with hills

luxuriantly covered with apple, cherry, and walnut trees,—

"Wisbaden is at all times exceedingly hot and oppressive in the summer months; which circumstance, though generally favourable to those using the waters, as seconding their action, is disadvantageous to many persons in health, who, however, may generally avoid the feelings of languor and indisposition from this cause by taking exercise out of the valley, on the hills where the air is mostly fresh and invigorating. The beauty of the country and the numerous objects of interest in the neighbourhood, offer great inducements for making excursions, the roads being good, the drives varied, and the rising grounds presenting views of the country, the Rhine, with Mayence and other towns on its banks."

"Wisbaden possesses greater advantages as a winter residence for an invalid than any other of the towns along the Rhine, or in Germany, with which I am acquainted. Sheltered from the north and east by the Taunus hills, with a comparatively open country to the south and west, the locality of Wisbaden is warmer than most others in this part of Europe; at the same time that, being exposed to the full influence of the sun during a great part of the day, it is comparatively free from damp, the air being light and healthy, snow seldom lies upon the ground, and the winter is in general short, as indeed might be surmised from the circumstance, that acacias and various shrubs of more southern climates thrive exceedingly well at Wisbaden."

Baden-Baden, although little more than half the size, excels Wisbaden in the beauty of its location and of the surrounding scenery, and in the numerous sources of amusement which it offers to its visitors during the season: the baths are of the same nature with those of Wisbaden, but contain less gas and saline matters, and are, consequently, less efficacious in the treatment of disease. The author suggests that, from being less energetic, they may, in persons of irritable temperament, when the Wisbaden waters would be too exciting, be used with less danger of unpleasant results. This reasoning, we are inclined to think, will not be satisfactory to most English patients who prefer to act upon the principle, that if one pill be good, to swallow the whole box at once must assuredly be better.

"Ems is not a very eligible place for a prolonged summer residence for those who do not require the use of its waters. From the extreme narrowness of the valley and comparative want of free ventilation, the heat and oppressive nature of the atmosphere, in the months of July and August, are at times excessive, producing general relaxation, languor, and lassitude in healthy persons. It is also indifferently provided with shade; and the hills on either side are so steep as to render their ascent fatiguing to pedestrians."

"After the extreme heat of the summer is passed, Ems will be found to be an agreeable spot for a few weeks, during September and part of October, at which period the waters may still be used with advantage; especially when taken internally by persons who purpose passing the winter in a more southern climate."

It contains numerous mineral springs, varying in temperature from 72° to 131°; several are employed as baths, and two, the Kesselbrunnen and the Kränchenbrunnen, are chiefly used for drinking. The principal saline constituents of the Ems waters, are the carbonate and muriate of soda. According to Kastner, a pint of the Kränchenbrunnen contains 31½ grains of solid matter, of which about 20 are carbonate of soda; it also contains 17.45 cubic inches of carbonic acid gas, its temperature being 86°; the temperature of the Kesselbrunnen is 115°, with only 12.45 cubic inches of carbonic acid gas to the pint. Their therapeutic effects are alterative, improving the secretions of the alimentary canal and of the kidneys; but they are also disposed to produce costiveness, which will require the aid of slight aperients. The diseases for which the waters are applicable are, according to the author, gout and rheumatism, dyspepsia, torpor of the liver, deranged states of the health, irritation of the urinary passages, calculous diathesis, diseases of the respiratory organs, nervous affections.

The subject of baths is, unquestionably, one most difficult to treat, particularly in a popular manner; but we scarcely know whether we should excuse a writer for indulging even for the mystification of common wits, in such abominable nonsense as that contained in the following paragraph:

"Though determining to the surface and producing increased activity in the functions of the skin, thereby relieving a congested state of the mucous membranes or parenchymatous viscera, it has at the same time a sedative operation on the nervous system, allaying its morbid irritability. In certain individuals, however, the bath occasionally produces a powerfully-exciting effect, and could not be continued without danger."

We can easily understand why the resident practitioners should find such wonder

working virtues in the waters of their own districts, and why they should endeavour to swell to its greatest length the list of diseases curable by their use; but they must expect in return such punishment as that contained in the following just remarks of an author of their own country, upon the Ems waters:—

"'Thilenius calls on the unbeliever, and bids him come and see. I did come and have seen, what I have also seen in every other bath, viz., that part of the sick were cured or relieved, and that another part left the place uncured and unrelieved. I saw some who bathed their eyes during four weeks, and they were no better; others, who still had their gouty and rheumatic pains when they left. I saw some patients arrive with hoarseness who, when they went away, could not speak a loud word; and others who, when they left, coughed and breathed as badly as when they arrived.'"

The author's description of WILDBAD is far from being the harbinger of prospective good.

"Being for the most part a poor-looking, little town, or rather village, placed in one of the most sombre valleys of the Black Forest, inclosed by steep pine-covered mountains, and at a considerable distance from any town of importance; Carlsruhe being nine leagues off, and Baden-Baden seven, across the mountains."

The temperature of the springs ranges between 92° and 99°; the solid residuum from a pint of the water scarcely exceeds three grains, "so that the medicinal properties of the water may be considered as principally depending upon its temperature." In other words, this is a common warm bath, with the advantages of change, &c., before pointed out; and yet the author's list of diseases improvable, is by no means diminished, as the next two pages will prove; we have the usual dose repeated of gouty and rheumatic cases, paralysis, nervous disorders, hysterical complaints, cutaneous affections, &c., ad nauseam.

"SCHLANGENBAD.—Few places would be more eligible, as a summer residence, for those who prefer seclusion and tranquillity to the crowd and bustle of larger baths, than Schlangenbad, which possesses most of the advantages sought for by those whose health requires rather repose than energetic medication. Situated in a beautiful and sequestered valley, inclosed between well-wooded hills (on which paths easy of ascent have been constructed to the summit, whence may be obtained fine views of the surrounding country), and near the richest part of the Rheingau; it possesses great facilities of communication with the Rhine, and with the other baths of the Duchy, especially Schwalbach and Wisbaden, to which good roads conduct, either over the hills or by the banks of the river."

The natural temperature of the water is 81°, it is alkaline, containing six grains of solid substance in a pint, of which three grains are carbonate of soda. The quantity of carbonic acid is also very small, being not more than one cubic inch and a half in a pint; but even this is more than is contained in the same quantity of the waters of Baden. "Schlangenbad ranks high as a bath for the relief of nervous affections of a spasmodic nature;" and Mr. Lee does not think that Dr. Fenner speaks his praises too warmly when he says,

"Vous sortez des Eaux de Schlangenbad, rajeuni comme un phénix; la jeunesse y devient plus belle, plus brillante, et l'âge y trouve une nouvelle vigueur."

And that writer farther continues,

"I know of no bath so fitted to preserve the character of youth, and retard that of old age; and this I know from experience, that the yearly use of it gives to an old man, cheerfulness, pliability of the limbs, and increased vigour."

We think that the perusal of this analysis will fully bear out the observations with which we commenced the review of the work; viz., that it is to the change of all that affects the external senses, the moral and the physical man, that these baths owe their power of bestowing benefit to those afflicted with disease, and not to any specific powers which they may by the ignorant be supposed to possess. There remains still to be examined the second part of the work, which treats on the cold springs; this we shall reserve for a leisure hour on a future occasion.

FATTY LIVER.—Fatty liver is most frequently observed in persons who have died from scrofulous tubercles in the lungs; in those, says Andral, in whom the blood has not been efficiently arterialised, and in whom the pulmonary exhalation is greatly diminished. Can it be, he inquires, from the absence of the due separation of hydrogen from the lungs that this compound of hydrogen, fat, becomes deposited in the parenchyma of the liver? This question is well deserving the attention of pathologists, and its solution might lead to important information. The disease has also been observed in some cancerous disorders and in dartrous diseases of the skin.—*Cyclopædia of Anatomy and Physiology. Art. Liver.*

REMARKS ON THE

NECESSITY OF RESTRAINING CERTAIN LUNATICS

BY INSTRUMENTAL MEANS, ILLUSTRATED BY A CASE IN THE

LINCOLN COUNTY LUNATIC ASYLUM.

"Restraint is never necessary, never justifiable, and always injurious, in all cases of lunacy whatever."—See Lecture on the Management of Lunatic Asylums, p. 21.

To the Editor of THE LANCET.

SIR:—In a letter published on the 10th of last March in the *Lincoln Gazette*, I defended myself against some aspersive and unfounded assertions respecting the management of the patients at the Lincoln Asylum during the period of my superintendence.

These extraordinary and unjust charges, of which I then complained, and do still complain, had been brought before the public in the work from which the above curious and heterodox opinion (more remarkable for its rashness even than its boldness) is borrowed. On that occasion I laid before the public, facts connected with the treatment of the patients during my residence at the asylum. I showed that a system of great mildness, forbearance, watchfulness, and kindness, had been persisted in with the happiest effects; a system and its results, the fair exposition of which I maintain was scrupulously avoided in the letter referred to, while a high-flown style of self-congratulation and false colouring, the reflection of long-exploded gloom, severity, and harshness, depicted in the harrowing practices which had existed in some of the worst-conducted asylums in this kingdom, previous to the Parliamentary inquiry of 1815, aided by false assertions and detractory allusions to the practice pursued antecedent to the writer's appointment, everywhere pervades this *ad captandum* composition.

I showed that the unusual freedom of the patients (particularly the males, for the unfinished accommodations for the females precluded the possibility of carrying out this humane method so fully with them) had wrung from the astonished boards the most satisfactory and flattering encomiums.

I showed that a single day had not passed before my appointment in which instruments of restraint had not been used; and that soon after I commenced the duties of my office, periods of considerable duration passed without any restraint whatever.

I also showed that the greatest feature in the whole management of this asylum, even from its very commencement, had not only been contemplated, but proposed and urged both by myself and Mr. Hartley, the late surveyor, and the important effects certain to result from its adoption announced before my resignation took place,—I mean the dormitories and night-attendants.

On this subject I expressed myself as follows:—"In recommending the adoption of this proposition I freely expressed my opinion, derived from practical experience in the management of the insane, that it would be the means of *almost entirely* superseding all instruments of personal restraint whatever. I had arrived at the fullest conviction on this point, but candidly acknowledge my views did not embrace the idea of banishing all species of instruments intended to act as a mild and moderate check upon the furious paroxysms of the excited maniac. I plainly perceived, and freely expressed the feasibility of the thing, but could not concur in its propriety, without some actual proof of its superiority to a mild, kind, and gentle management, combining, in the *very worst* forms of paroxysmal excitement, the use for short intervals of a moderate personal restraint, obtained by instruments of a simple construction."

The course of events at the asylum has, in my opinion, fully proved that the practice I pursued, and defended above, was based on sound principles and correct reasoning; and in order to make this evident, as well as to put the public in possession of some of the extraordinary facts connected with the operation of the system of non-restraint (as it has been absurdly and erroneously designated), since the subject received some degree of attention at the board, I have troubled you with the present communication.

I have condensed into the form of a table much highly important and interesting matter, derived from the register of restraints, the minute, and other books, kept at the asylum. Before I offer any explanation of it, I must premise that the lowest number of hours of restraint on the male side of the house, in any year previous to my appointment, in 1834, was 4433, and that the highest number which occurred in 1830 was 19,763½. During the last twelve months of my superintendence, only 228 hours were spent under restraint among the males, and in nine of those months there were only 36 hours; while October, 1834, and April, 1835, were remarkable from there not having been a single instance of personal restraint of any kind in either.

On the other hand, my successor, the author of the brilliant conception at the head of this letter, during the first *six months* of his management, increased the hours of restraint of male patients to 1083. At the time of my appointment the patients amounted to 51, the greatest number there had ever been; the attendants were 6 in number, 4 males and 2 females. In February, 1835, the patients had increased to 71 (of whom 45 were males), but no addition was made

to the attendants; and the hours of male restraint were only 5 for the whole month. I am desirous that these facts should be viewed in connection with those exhibited in the table below, by which it is proved,

1st. That from the 22nd of March, 1837, to March, 1840 (the time at which the management of the patients began to receive the attention it had too long stood in need of), there had been only a single instance of restraint (and that of only half an hour's duration) recorded in the register.

2ndly. That from last March to the present time, a period of only six months, restraint has been almost of daily occurrence, and has amounted to the extraordinary number of 1275 hours: this astounding augmentation of restraint, forms a striking contrast to the crude and unsubstantial dogmatism quoted above.

3rdly. That this increased restraint has been carried on under the most favourable circumstances and arrangements that its supporters can devise; for there are now not less than 12 attendants, 6 keepers and 6 nurses, to rather better than a hundred patients; while the following order has been made for a still farther addition:—"Aug. 17, Resolved, that an attendant be engaged exclusively for Miss A.;" and what is, if possible, of even more importance, the dormitories and night-watching have been for months past in full operation.

4th. That, from September 17, 1838, to February, 1840, 9 attendants, 4 males and 5 females, were discharged for maltreating the patients, though the public were all the time amused with the most exulting statements, issuing from the promoters of this wild (in my opinion), impracticable scheme, of the wonderful mildness and superlative efficiency of the treatment of the insane at Lincoln.

5th. That, from March last to June, although restraint has been found utterly indispensable, 4 attendants, 2 males and 2 females, were dismissed for cruelty; making, during the latter part of the period in which this experiment has been in trial, no less than 13 summary dismissals for abuse of the patients. It is proper also to mention that, independent of these discharges shown in the table, several attendants during the same period were reprimanded, and cautioned on account of their objectionable conduct to the patients.

	No. of Patients restrained.		No. of Instances of restraint.	No. of Hours of restraint.	No. of Patients.	No. of Attendants.		No. of Attendants dismissed for abusing of Patients.	
	M.	F.				M.	F.	M.	F.
1837.									
March 22	..	1	1	4	87	4	3		
1838.									
January 17	..	1	1	¼	88	4	4		
September 17	..	..	..	..	96	5	5	2	
1839.									
March 11	..	..	..	..	100	..	..	..	1
April 22	..	..	..	..	101	..	..	1	
May 6	..	..	..	..	106	..	..	1	
July 1	..	..	..	..	110	..	..	..	2
1840.									
February 17	..	..	..	..	108	..	..	..	2
In March	..	1	15	66	107	..	..	1	
April*	2	2	12	56¾					
May	4	5	55	259	..	..	6	1	1
June	4	7	56	182¾	108	6	6	..	1
July	1	7	65	419					
August to 27	3	4	54	298¼	104				
			257	1275¾		12		13	

* On the 23rd of April the present house-surgeon, Mr. Smith, commenced his duties, under the superintendence and instruction of his predecessor.

The means of restraint employed, were the belt, hobbles, holding by the hands, confining the person with a roller towel, and solitary confinement.

One of the most refractory and distressing cases now in the house, is that of an unfortunate female (Miss A.): the judicious and humane management of which, I fearlessly assert, can never be accomplished, by any means at present known, without recourse to instrumental restraint. Candour requires that this case should be brought fairly before the public; and for this purpose it will be necessary to give a few extracts from documents of the institution.

Extracts from the Journal of the Physicians.

"Aug. 1, 1840.—Miss A.'s bed-room, which is also used as her *seclusion room*, is now under process of cleaning out; its atmosphere is heavy and damp. I beg that it may be clearly understood that I disapprove of confining patients during the day in their night rooms."

"2. *Miss A.* I found this patient standing in her night dress at the door of her room, the floor of which was covered with the remains of her meals. She has been violent the whole afternoon: latterly, she has refused to leave her room at all; and any attempt to remove her, throws her into a paroxysm. At times she will not suffer any one to approach her."

"3. *Miss A.* is confined in the bed-room of another patient, until her own is cleaned and ventilated."

"6. *Miss A.* is secluded, or rather refuses to leave her room."

"7. *Miss A.* is secluded; she becomes violent when any attempt is made to remove her from bed."

"10. *Miss A.* was secluded during the month of March, 13 times, and passed in solitary confinement ..	66
In April, 5 times in all	28½
In May, 43 times	249
In June, 33 times	132
In July, 39 times	315½
In August up to present date.....	101¼
Hours of solitary day confinement from 1st of March up to present day	891¼

The treachery and disposition to injure others manifested by this patient are, if anything, increased, and the general features of the case have certainly become worse. She now will not bear to be approached by the attendants; and refusing to leave her cell, passes day and night either in bed or standing in her night-gown upon the floor. Whatever may be said of the moral treatment of this case, the physical treatment, if allowed to go on, will soon undermine her constitution. She grows thin, and her countenance is blanched."

"11. *A.* absolutely refuses to leave her room."

"12. *Miss A.* is in seclusion, having assaulted nurse R.; she was secluded yesterday, from 7 A.M. to 9 P.M."

"21. *Miss A.* in confinement: last night she was out of bed from 10 P.M. to 3 A.M., knocking her head and limbs against the door. The door and boards of this cell are frequently stained with blood."

"24. I again direct the attention of governors to the cases of B. and Miss A. The former is generally in a state of nudity, and has been seen attempting to expose the persons of other patients. The latter continues a *furious and intractable maniac*....the floor of her apartment (were I to call it sty, I should come nearer to its actual state) is often stained with blood. She has committed an assault upon a quiet and harmless patient, by stamping upon her face, and crushing her head upon the stone pavement. The nurses fear her; and it has been found impossible (with a due regard to the safety of others) to give her that advantage of air and exercise which other patients enjoy. Sooner or later something dreadful will happen. I take this Board to witness, that I have no share in it. I have represented the case as it is, and I have ventured upon one occasion to give my advice. On that occasion, a vice-president of this institution charged me with being dishonest enough to try to prove a case, by *tying a woman up* when there was no occasion for it. Let those who tie up my hands look to it. I consider this case of B.'s a scandal to the house: had the *moral power* of proper restraint been resorted to at first, the habits would not have formed which now set us at defiance. A patient (Miss B.), with very great justice, complained to me of the inhumanity of exposing quiet and decent people to the violence and obscenity of two or three patients in the north gallery. I could not contradict her. The treachery and violence of Miss A.; the unheard-of, the preposterous obscenities of Mrs. H.; the practical indecencies of Mrs. B., make the place neither more nor less than a pandemonium."

"26. Just before I wrote the first lines of this report, I had directed *Miss A.* to be removed into the court. The head attendant entered the room this moment, with the intelligence that Miss A. has become violent, and that she is beating her head upon the form. Mr. Smith and I went to the window of the nearest apartment, and found she had settled again."

Extract from the House Surgeon's Journal.

"Aug. 14, 1840.—*Miss A.* during the last two days has not left her room, or even dressed herself; she spends great part of the day standing in her night-dress, looking through the wicket of her door; when the nurses go near her, in order to put on her clothes, she becomes extremely violent: her appearance is much altered for the worse, probably owing to the continued confine-

ment in a small, ill-ventilated apartment, where she is compelled to inhale an atmosphere loaded with exhalations from her own urine and fæces: the heat communicated from the laundry-fire must also tend to render this apartment peculiarly ill-adapted for the reception of a patient who frequently does not leave her room for fifty hours together."

Whether the public is competent to judge upon the subject of the best mode of treatment of the worst forms of lunacy is not my case; they have been regarded as the best judges whether restraint is to be used or not (for the subject was first broached before the *members of a mechanics' institution*); therefore it seems at least only fair that they should know something of the circumstances under which it is required, but let that pass; the members of the medical profession, and those especially who have employed high talents and acquirements in the cause of the insane, devoted their best energies and their lives to the study of this awful malady, and whose hearts have never ceased to beat with the warmest philanthropy and sympathy with their stricken fellow-man—their miserable and distressing charge,—to whose assistance they have contributed the unwearied aid of high and lofty endowments (and I rejoice to know many such), are alone the individuals to whom I appeal on this point.

Here is a difficult, and, under the present system, a wholly unmanageable case of insanity; the unhappy victim of which spends day after day, and night after night, in solitary confinement, in a small, ill-ventilated, ill-lighted, and oppressive apartment; a restraint known to be the most insupportable, and from which the most hardened criminals shrink with dread abhorrence, and, with its additional accompaniments in this instance, a species of restraint infinitely more calculated to convert the same man into a lunatic, than to restore the lunatic to health. Secluded from the free light of heaven, from the pure air, and bracing exercise essential to health, what chance has this most unfortunate person of obtaining deliverance from the calamity which made her an inmate of the asylum? An asylum? Alas! to her it is a dreadful dungeon! I will not denounce this treatment as a disgraceful instance of *mala praxis*, but this I will say, that I am perfectly horrified that such a reprehensible mode of treatment should be persisted in by those who are continually publishing to the world the superiority of the *management* of the insane at Lincoln.

Proper instruments of restraint, judiciously and humanely employed, are not ignominious manacles and fetters, as the vain claimants of a pseudo-humanity love to represent, any more than an asylum is an ignominious place of detention; for what is an asylum but a house of restraint, and keepers but persons of restraint? Nor are they simply physical agents; in the hands of the rational and experienced practitioner, they form one of his best and most important remedies; used with discrimination and judgment, a suitable instrument of this description is a moral agent of incalculable benefit, and in certain forms of ungovernable frenzy, where the patient has lost the power of self-control, perfectly indispensable; unless a preference should be given to other methods and means of the most objectionable kind. Let the record of restraints, the opprobrious case of Miss A. above, and the fact that the system of non-restraint (so called), as it has been carried on at Lincoln, has been a system of cruel manual coercion, in which the gripe of living fetters (and frequently much worse, as the numerous discharges for cruelty prove),—the powerful hands of herculean and irascible attendants,—have been the obnoxious means substituted for mild mechanical controul:—let these facts prove the efficacy of such a wretched management. I am quite confident the best and most successful practitioners in this branch of medicine will demand better reasons than any at present adduced, before they follow in the wake of this retrograde movement,—and they have a right to demand them. I am, Sir, your most obedient servant,

SAMUEL HADWEN.

Lincoln, Aug. 29, 1840.

THE EYELIDS,

IN THE OPERATION FOR

RECTOCULOMY.

To the Editor of THE LANCET.

SIR:—I forward for your inspection two instruments which I use for keeping the eyelids open during the operation for strabismus, and which I have, from ther application in more than twenty cases, found to be less painful to the patient than any other I have seen, and perfectly safe in the hands of any assistant. The short-curved instrument I use for the upper eyelid, gently raising the tarsus with the fingers, and passing it underneath, so that the lid is completely supported, and may be raised at any time, if required, from the ball of the eye. The handle of the speculum lies on the patient's forehead. The longer instrument is applied in the same way to the inferior tarsus, and, from having its handle of a proper length (about seven or eight inches), the assistant's hand does not in the least interfere with the operator. With these specula I have been able to operate with ease on the most unruly children; and another advantage is, that the patient can

be allowed to rest by removing the instrument in any stage of the operation. In making the specula, care should be taken to obtain a proper curvature of the hooked portion which is intended to hold the eyelid, as, on its malformation, great pain will result on its application; but any surgeon making the instrument had better apply it to his own eye, which will teach him the proper curvature. They are easily manufactured from copper wire, and the ends should be lacquered, which is effected by a spirit lamp. I am, Sir, with much esteem, your obedient servant,

HENRY C. ATTENBURROW.

Nottingham, August 25, 1840.

*** These two instruments resemble in general form the figure 7. The horizontal branch of the speculum for the upper lid is longer than that for the lower; and both are curved at the extremity, so as to form a flat blunt hook for holding the lid open. Coxeter, of Grafton-street, Gower-street, has just invented a very simple and well-contrived apparatus for keeping down the lower lid without the aid of an assistant. It consists of a small speculum, by which the lower lid is held firmly, but gently downwards, and is retained in that position by means of a curved spring, fitted with a pad, which embraces the lower jaw. With this instrument, all the comfort arising to the operator, from a widely-opened eye, may be attained with a single assistant.

A SPECULUM

FOR THE OPERATION OF DIVIDING THE RECTI MUSCLES IN STRABISMUS.

By CHARLES CLAY, *Esq., Surgeon, Piccadilly, Manchester.*

To the Editor of THE LANCET.

SIR:—My attention of late has been frequently directed to the various suggestions of your correspondents on the improvements in performing the operation for strabismus, and the kind of instrument best adapted to the purpose; but, in my opinion, too much attention seems at present to be directed to the improvement of the instruments rather than to the simplest and best mode of performing the operation, so as to be accomplished with as little pain, and, at the same time, as expeditiously as possible. I have always looked upon hooking the conjunctiva and sclerotica as an objectionable part of the operation, and that most frequently complained of by the patient, causing the most formidable objection to the operation. I have frequently performed this novel and very valuable operation with every success I could desire, and have adopted any suggestion that I considered an improvement, as it has been presented to me; in all the cases in which I have been engaged, the patient has complained more of the hooking the sclerotica, and the unequal pressure of the fingers of the assistant in raising and depressing the tarsi, &c., than the operation itself. Your correspondent, J. J. Adams, in No. 22, page 785, *speaks of the painfulness of pressure of the hook on the eye.* Now, I have but little hesitation in saying the hook was never intended to be so applied as to press upon the eye, but simply to draw it from the inner or outer canthus. When we consider the pain attending the application of the hook, its liability to tear itself out if the patient be unruly, and the additional wound which has to be healed in consequence, warrants my suggesting means to do away with its use altogether; this, in my opinion, may be done by the speculum* I have contrived, which differs very considerably from that in general use. It may be made of horn, ivory, or bone, or even more costly materials, as silver, &c.; but as its thickness is considerable, it would be very expensive. The advantages attending its use are, that any person may assist in the operation, and one assistant is sufficient; whilst in using hooks two or more are required, and those should be well acquainted with the operation, and such as are not to be had at any moment, whilst with the improved speculum the operation can be undertaken at a moment's notice.

The tarsi are separated very widely, the patient directed to look outwardly or inwardly as the case may require, and the concave surface of the speculum placed on the uncovered eye. The thickness of the speculum forms an excellent and effectual support to the upper eyelid, whilst its lower edge, of the same thickness, without any uneasiness, depresses effectually the lower lid, the slight concavity of the inner surface admits the cornea, and the flattened surface round the concavity makes a steady pressure on the eye, the cornea itself being in some measure relieved from the pressure by the concavity, the eye is at perfect command, and can be moved or kept immovable in any required position. It must be evident the smoothness of the instrument, the equality of its pressure, and the ease and comfort

* The speculum of Mr. Clay, in general form and size, represents a teaspoon, having about one-third of the extremity of the bowl removed by a semilunar cut; on the external surface it is less convex than a spoon; on the internal surface, that which is intended to be applied to the eye, it is concave, and hollowed so as to fit the cornea and front of the globe, while the edges are thick to keep apart the eyelids. When placed in its position between the lids the inner angle of the eye is left uncovered, in consequence of the semilunar notch, and the surgeon is supposed to operate in the resulting space.—ED. L.

with which it keeps asunder the tarsi, must exhibit advantages far superior to the fingers of the assistants pressing unequally on a wire speculum, the convex point of which making its hold on a point only; and, lastly, is applied to meet another convex surface, the barbarous hooks, of which we have an endless variety, and which, to be of any service, should take hold of a considerable portion of the conjunctiva, to prevent the possibility of their slipping or tearing out.

With the speculum I have here introduced, the operation is one of ease and expedition both to patient and operator, when compared to the hook system, which it is now time to explode as unnecessarily painful. The operation I perform thus: Place the patient on an easy chair, with the head reclining back, a good light falling on the eye; opening the tarsi, the speculum is placed between the tarsi upon the naked eye. The speculum is then left to the care of an assistant,—who stands behind, supporting the patient's head on his chest,—directing him to draw the eye from the canthus, and keep a steady pressure on the eye. A small pair of forceps, scalpel, and a probe, with an obtuse point, *without bulb*, and bent at the end about half an inch, are all the instruments required; then pinch up a portion of conjunctiva with the forceps, and make a bold incision of half an inch, pass the probe under the tendon, and separate it with the knife, the whole not requiring more than thirty seconds; the probe having no bulb is not so likely to entangle itself, and the knife will be found to divide the tendon with less pain than scissors. I have thus endeavoured to render the operation easy and expeditious, the instruments *few*, and of less formidable character. Your correspondent, Mr. Mackmurdo, p. 784, in support of Mr. Adams's hook, *states that the incision into the conjunctiva, if large, heals slowly and unsatisfactorily*. In all the cases I have operated on the healing has been rapid, and no bad symptom has occurred. I think it preferable to make a bold incision at once, than be under the necessity of enlarging it. If the speculum be made of silver the edges would have to be turned back, to make up for the thickness which is necessary to support the tarsi.

101, Piccadilly, Manchester,
Aug. 31, 1840.

THIRD CORONER FOR CHESHIRE.

Our contemporary, the *North Cheshire Reformer*, takes upon himself to assert that there is a general feeling amongst the freeholders against the appointment of a medical coroner. This we can contradict from our own knowledge; and we dare venture to say that if the freeholders, in this early stage of the business, entertain any fixed impression at all, it is decidedly in favour of a medical coroner in preference to a legal one.—*The Stockport Advertiser.*

The following letter—addressed to Mr. W. H. Bellott, surgeon, of Millgate Hall, Stockport, in reply to an application from that gentleman to the medical coroner for Middlesex, for information relative to the statements contained in the posting-bill issued by the lawyers of Cheshire—was published in the *Stockport Advertiser* of Aug. 28. There are two medical candidates in the field, Mr. Bellott and Mr. W. Tinker, of Hyde, against two attorneys:—

MR. WAKLEY'S REPLY.

35, Bedford-square, London,
August 26th, 1840.

Sir:—In The Lancet of Saturday next will be found a very brief notice of the false allegations which have been published in a posting bill, relative to the election of a coroner for the county of Cheshire. You will find in the figures contained in that short notice, an ample and most complete refutation of the wilful falsehoods, which the silly author of the posting bill has had the stupidity and temerity to commit to paper. The difference in the expenses of the inquests held in the two divisions of Middlesex, wherein the medical coroner and the attorney coroner respectively discharge their duties, has been so striking, that the Committee of the House of Commons took especial notice of the subject, and the Committee of Magistrates appointed to inquire into that and other matters, referred to the diminution of cost on the part of the medical coroner, as compared with that of his colleague, in terms of marked approval. Since the medical coroner has been appointed, the following facts have been proved—indisputably proved—before a Committee of the House of Commons, and a Committee of the Magistrates, viz.:—

1st. That the *medical* coroner had taken a less average number of inquests than his predecessor, who was *upwards of ninety years of age at the time of his decease.*

2nd. That a *less* sum of money has been paid for the attendance of medical witnesses.

3rd. That a *less* sum of money has been paid for *post-mortem* examinations.

4th. And that the disbursements of the medical coroner, for the expenses of inquests, have been less in amount by *one third*, than in the other division of the county, where my respected colleague, the attorney coroner, presides.

At the same time it may be stated, that my division of the county occupies, in square miles, an extent of ground seven times greater than that of the eastern division, and a larger number of inhabitants, to the extent of upwards of two hundred thousand persons.

As you ask for information on these subjects, and as the writer of the anonymous

bill has been guilty of publishing so many gross falsehoods regarding the office of coroner in this county, you are at perfect liberty to publish the statements which are contained in this communication. I have the honour to be, Sir, your very obedient servant,

THOMAS WAKLEY, Coroner.

CONTRACTS FOR VACCINATION.

To the Editor of THE LANCET.

SIR:—In reading the "Minute of the Poor-Law Commissioners on Contracts for Vaccination," in THE LANCET for last week, the first thing that struck me as worthy of comment, is the periods at which attendance is to be given. Every one who is acquainted with the subject is aware that, in order to insure successful vaccination, it is desirable that the lancet should pass at once, and without loss of time, from a fresh pustule into the arm of the patient to be vaccinated. The time, therefore, which should elapse between the vaccination of one person, and of another who is to be vaccinated from him, should be just long enough to allow of the virus within the pustule being fully formed. This will generally take place about the eighth day; consequently, a person who vaccinates regularly once a-week, will have a good supply of fresh matter constantly, provided *he can get his patients to attend a second time* to be examined. There are, however, places, probably, where so few would be vaccinated, that a regular supply could not be kept up in this way. In this case, of course, the operator must depend for his virus upon a supply on glasses, &c., by which means he will frequently be foiled.

The next paragraph proposes to stipulate for the services of the contractor, *whenever he is personally applied to at his own house*. Had any *medical man* anything to do with framing this clause? If so, I think the sooner he is transferred to Hanwell or Bethlem the better. But what does it mean? By turning to the contract proposed by the Commissioners to be made between the vaccinator and the guardians, I find it stipulated that "he will vaccinate all persons resident within the said ———, who shall apply to him at any reasonable hour of the day at his own residence." By reasonable hours, I suppose, is meant the hours during which business is usually transacted; say, from nine in the morning till six or eight o'clock in the evening. So that during this time the vaccinator, or his assistant, is expected to be constantly in attendance with a supply of vaccine virus. Leaving out of the question the uncertainty of the result of operations performed, as in this case they always must be, with *dry lymph*. Is it to be expected that any medical man will keep a person constantly in attendance, to perform perhaps one or two operations in a week? Besides, what good end is to be answered by this plan? When a woman has a young child, she must attend to it constantly, or employ a nurse; and it appears to me strange, if neither the one or the other, nor any one else, can, before the child is six months' old, take it to be vaccinated at the regular hour. Besides which, it is much better that the vaccinator should go to his patient when he happens to be in possession of good lymph, than be constantly kicking his heels at home, and, after all, perform the operation imperfectly.

The next subject to which I would revert is the remuneration; and the amount of this, it appears, is to be in great measure regulated by the "fees paid to medical men for examination and certificates in the case of factory children and recruits." Have the Poor-Law Commissioners "made any provision for parading all the children of the poor before the vaccinators, as is done in the army, or will they be brought up like the factory-children? If so, I think 1s 6d per case will pay them very well; but if they are to be brought by their parents at their own will and convenience, I think I have already shown (see Statistics of Vaccination, LANCET, June 20th), that only two-thirds of the population will be vaccinated. The fact is, if vaccination is to become general, and small-pox thereby extinct, medical men must *go* among the poor, and persuade them to *allow* their children to be vaccinated. They must then *go* to the guardians or others for orders (where this is required), after which they must *call at the houses* of their patients, to vaccinate the children; and again, to see that the operation has been successful. Let any man, in his right senses, consider this, and then say if 1s 6d will remunerate the vaccinator.

The last point which I would notice, is the giving certificates to parents or others when the operation has been successful. What purpose this is to answer, unless it be intended to supply the fathers with pipe-lights, I cannot imagine; and the "Minute" is silent upon the subject.

Hoping that these matters will be thoroughly investigated by medical men, before they sign *the agreement* suggested by the Poor-Law Commissioners, I remain, Sir, your most obedient servant,

JOSEPH CURTIS, M.R.C.S., &c.

Camden-Town, Sept. 7, 1840.

WESTMINSTER HOSPITAL.

Sept. 8, 1840.

MEETING OF GOVERNORS—NEGLECT OF THE OUT-PATIENTS OF THE HOSPITAL BY THE SURGEONS.

After some preliminary business, chiefly in reference to the reception of accounts, the main business of the day was entered upon, notice having been given by Mr. Bicknell, at the last quarterly meeting, to the following effect:—

"That, at the next quarterly board, he should move that No. 38 of the Rules and Regulations of the Westminster Hospital be altered, so far as it is thereby declared that the establishment shall consist of three physicians and three surgeons; in order that it may be considered, and, if expedient, resolved, That an addition be made to the number of medical officers of the hospital, to such extent as shall be considered advisable."

The worthy governor proceeded to say, that much canvassing had taken place with regard to his motion, governors being asked whether they would vote against it or for it, without their having formed the slightest idea of the nature of the resolution itself, or of the grounds upon which it had originated. He did not expect, on the present occasion, that his motion would be carried; but he was convinced that when the grounds upon which it was founded were generally known, it would be carried; or, at least, such steps would be taken, as would lead to the establishment of a remedy for that of which he, Mr. B., had to complain. He would take care that a circular should be addressed to every governor, stating the facts upon which his motion had originated. Mr. Bicknell then proceeded to read two or three of the by-laws of the corporation, in which it is enacted that the hospital medical staff should consist of three physicians and three surgeons, and that these officers should see all the out-patients on so many days during every week. Now, he would make no personal allusions in his observations; but he would make this general statement, founded on his own personal knowledge, namely, that the *surgeons never saw an out-patient at all, except when particular cases were selected by the house-surgeon for their inspection.* He would not go into the question as to whether the surgeons should see all the out-patients, but he would press for the alteration of a law which had never been carried into effect. The out-patients' cases were often of a very grave character, and should not be left to the house-surgeon's care, as they were at present, however competent such officer might be. The physicians' out-patients were not so left. Mr. Bicknell then read his motion, which was seconded by Mr. Wood, who stated that complaints were frequently made by out-patients, to whom he had given letters, to the effect, that "they had no attendance but that of boys."

Mr. Shepherd thought further inquiry should be made previous to the passing of such a resolution. He moved that a committee be appointed to inquire into the subject.

Mr. Lynn had made an arrangement with the other surgeons to attend for the purpose of seeing the out-patients on certain days. He had always attended on *his* days, but could get no out-patients.* He regretted this, as there were often interesting cases among them.

Dr. Burne has long known that the surgical out-patients had been in the entire "possession" of the house-surgeon. The medical officers had long known it, and some time since had formed a plan to remedy the evil, but this had signally failed.

Mr. Edwards bore testimony to the fact of the surgical out-patients being entirely under the care of the house-surgeon. The house-surgeons, during the five years he was connected with the hospital, were none of them qualified. Mr. Edwards then forcibly advocated the appointment of a paid resident surgeon, as a necessary appendage to the hospital.

The amendment was carried.

The Board then passed another resolution, agreeing to the necessity of establishing a school of medicine in connection with the hospital.

BRITISH MEDICAL ASSOCIATION.

MEETING OF COUNCIL,

Exeter Hall, September 1, 1840.

Dr. Webster, President, in the chair.

The minutes of the last meeting were read and confirmed.

Read a letter from the Glasgow Medical Association, which the President is requested to answer.

A letter from — Hawes, Esq., M.P., on the subject of Medical Reform, was read and considered.

Letters on the same subject were also read from Dr. Maunsell of Dublin, and J. Bedingfield of Stowmaket.

Some conversation having taken place respecting Poor-Law Medical Relief, it was *Resolved*, "That a letter be addressed to the Poor-Law Commissioners, requesting to know when they propose to carry into effect the recommendations in their Report relative to Medical Relief."

The other business of the evening was confined to making arrangements for the approaching anniversary.

* This is a curious statement, as connected with the fact that, in 1839, there were 7993 out-patients! Is Mr. Lynn a favourite with the patients?

Resolved, "That the usual advertisement be inserted in THE LANCET."

Resolved, "That Messrs. Davidson, Eales, James, and Rendle, be appointed scrutators of the balloting papers."

Resolved, "That in consequence of the absence from town of many of the members of the Association, and of the members of Parliament, who have taken an interest in the question of Medical Reform, it is highly expedient that the customary Anniversary Dinner of the Association should be postponed until some time after the meeting of the Houses of Parliament."

The meeting then adjourned.

INQUESTS IN SURREY.

To the Editor of THE LANCET.

SIR:—Presuming you to be better informed than most with the law relating to inquests, I beg leave to send you two cases out of many similar ones, that have occurred in the neighbourhood of Croydon, with a view of putting a stop, if possible, to such a useless expense to the county; because if proper evidence is not obtained the ends of justice can never be answered, and such inquests become mere *forms*.

The first of the two cases is that of a tramp, who took up his abode at a common lodging-house, one generally frequented by the worst description of persons. The following account I had of the woman who keeps the house, that the man when he came in on the Friday was quite well, and continued so on the Saturday; but on the Sunday morning he appeared to have a cold and cough. He came down stairs, and his cough annoyed the rest of the people, who were much displeased with him, and wanted to turn him out; during this time he fell from his seat. An order was immediately obtained from the relieving officer, and I visited him directly, and found him quite dead, lying on the floor. I did not make a minute examination of the body, supposing an inquest would be held, when an opportunity would be afforded of so doing. The inquest was held, but no medical examination of the body took place—no medical evidence called; and the jury, which is generally composed of persons who have no idea of what evidence may be required, brought in their verdict, that the man died a natural death from natural bodily illness. Where they could have obtained evidence to come to such a conclusion, I am quite at a loss to imagine.

The next case was that of a railroad labourer, who had been missing three weeks, and was accidentally discovered in a corn-field lying on his back, with a razor grasped in his hand; and when the body was moved the head fell from the trunk, but a surgeon's evidence was not deemed necessary by the coroner. The head being separated from the trunk in so short a space of time, ought, in my opinion, to have required such evidence; the verdict recorded was, that the man destroyed himself by cutting his own throat.

I think it the duty of every medical man to give publicity to such proceedings when they happen to come to his knowledge. I am, Sir, your obedient servant,

GEORGE BOTTOMLEY.

Croydon, Sept. 7, 1840.

EIGHTEENPENNY VACCINATION.

To the Editor of THE LANCET.

SIR:—From reading the letter, signed "VERITAS," in your last Number, your readers might be led to infer that the Southampton District Committee represented (along with Mr. Cooper) the reformers of St. Pancras. I beg leave to deny that inference, and to state that the resolution, which must be so flattering to Mr. Cooper's feelings, was passed at a meeting of not more than a dozen individuals, *in a small tap-room, in a small public-house, called the Exmouth Arms*, situated in the neighbourhood of the terminus of the Birmingham railroad. This committee, at the utmost, does not consist of 60 members; and how "VERITAS" can magnify 60 into 600, I am at a loss to understand, unless he means "over the left," as his companions would say. The Exmouth Arms is the head-quarters of a party, of whom a pianoforte-stringer is secretary, and a person, who is now paying the penalty of certain misdeeds in Whitecross-street, a halfpenny-cigar seller, and a respectable fitter-up of water-closets, &c., are the leading members. Mr. Cooper should have the resolution printed, framed, and glazed, so as to be able to exhibit it on all occasions with the other "honours," of which the world never heard before, but which, it appears, he does not hide under a bushel. I feel confident that all benevolent medical men will be glad to hear of Mr. Cooper's having been complimented by such a fraternity, as it will help to console him for the contempt which he may have secured for himself from his medical brethren all over the United Kingdom. I am, Sir, yours, &c.

A RATEPAYER OF THE SOUTHAMPTON ESTATE.

St. Pancras, Sept. 7, 1840.

*** The name and address of the author of this communication have been handed to us.

TO CORRESPONDENTS.

Mr. Curling's note is unavoidably deferred this week.